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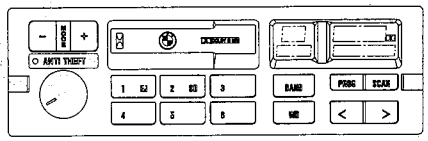
Service Manual

• KE-91ZBM/US



ORDER NO.
CRT1294

BMW ANTI-THEFT CD-READY RADIO

KE-91ZBM US, ES

Note:

- **See the separate manual CX-156 (CRT-468) for the cassette mechanism description.**
- **Dolby and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.**
- **Noise Reduction System manufactured under license from Dolby Laboratories Licensing Corporation.**

Model	BMW No.
KE-91ZBM/US	88 88 1 600 235

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1. SPECIFICATIONS

TUNER

FM Receiver

Usable Sensitivity (Load)	
[30dB(N + D)/(S + N + D)]	1μV
Signal/Noise Ratio (1 mV)	65 dB
Overload Signal	1V
AM Rejection	40 dB
IF Rejection	100 dB
Image Rejection	50 dB
Spurious Rejection	70 dB
Alternate Channel Selectivity	60 dB
Capture Ratio	2 dB
Stereo Separation (1 kHz)	40 dB
Stereo Distortion (1 mV)	0.5%
Frequency Range (US)	87.7 to107.9 MHz
(ES)	87.5 to 108.0 MHz
Intermediate Frequency	10.7 MHZ

AM Receiver

Usable Sensitivity [20 dB N/(S + N)]	10μV
Signal/Noise Ratio (5 mV)	50 dB
Selectivity (± 10 kHz)	100 dB
IF Rejection	100 dB
Image Rejection	60 dB
Distortion (5 mV RF)	0.5%
Frequency Range (US)	530 to 1710 kHz
(ES)	531 to 1602 kHz
Intermediate Frequency	450 kHz

WB Receiver (US)

Usable Sensitivity (Load)	
[20 dB(S + N)/(S + N + D)]	0.3 μV
Signal/Noise Ratio (1 mV)	55 dB
Distortion	1.5%
Frequency Range	162.400 to 162.550 MHz (25 kHz Step)
Intermediate Frequency	
1st I.F.	10.7 MHz
2nd I.F.	450 kHz

CASSETTE DECK

Wow and Flutter WRMS-JIS	0.07%
Signal/Noise Ratio	50 dB
Dolby* B NR Effect	10 dB
Separation	50 dB
Cross Talk	55 dB
Distortion	1%
Frequency Response (-3 dB)	
Normal	40 Hz to 15 kHz
Metal	40 Hz to 18 kHz

AUDIO CONTROL

Tone Control Response	
Treble Boost/Cut 10 kHz	± 10 dB
Bass Boost/Cut 100 Hz	± 10 dB

POWER AMPLIFIER

Power Output (R_L = 4Ω, Vcc = 14.4 V)	
10% THD	5.5 W/Ch
1% THD	4.5 W/Ch
THD (R_L = 4Ω, Vcc = 14.4 V)	
Po = 1 W	0.7%
Frequency Response	
(±3 dB)	20 Hz to 40 kHz
Signal/Noise Ratio	65 dB

2. DISASSEMBLY

• **Case**
1. Remove the screw.
2. Insert and turn a flat screwdriver to remove case.
3. Raise case to remove.

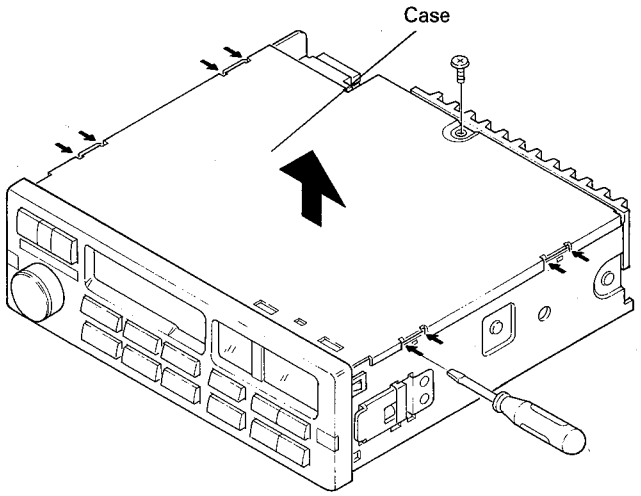


Fig. 1

• **Cassette Mechanism Assy**
1. Remove four screws.
2. Disconnect connector, and then raise cassette mechanism assy to remove.

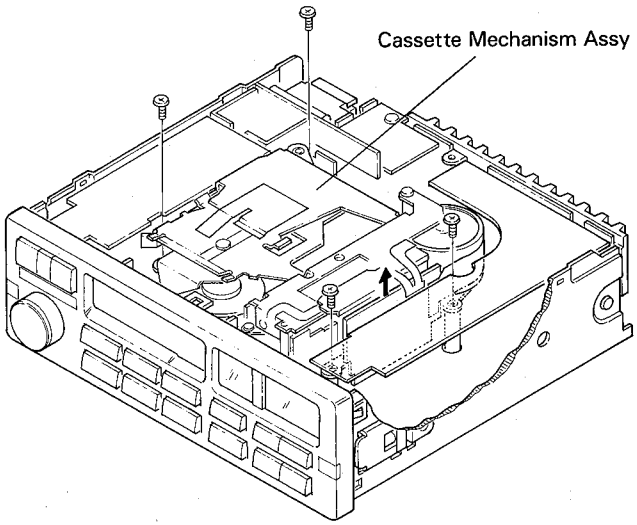


Fig. 2

• **Grille Assy**
1. Disconnect connector.
2. Remove knob.
3. Press tab at five locations indicated by arrows, and pull out grille assy.

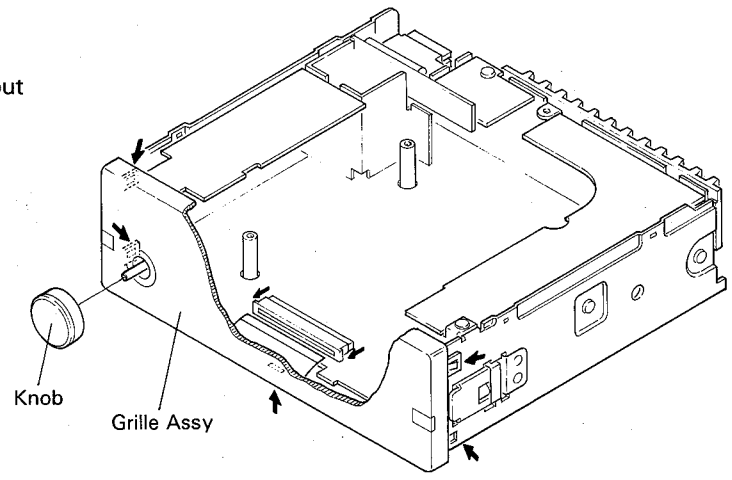


Fig. 3

- **Chassis Unit**

1. Remove six screws.
2. Raise up on tuner amp unit to remove it from chassis unit.

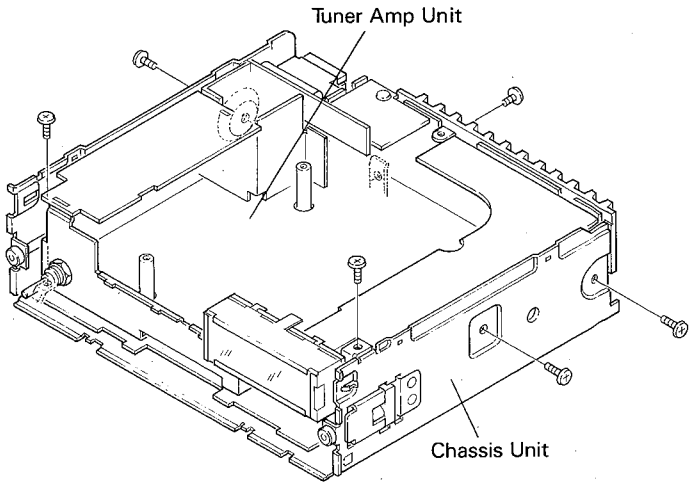


Fig. 4

- **Key Board Unit**

1. Remove the solder at location indicated by white arrow.
2. Press tab at location indicated by black arrow.
3. Remove five screws, and then raise key board unit.

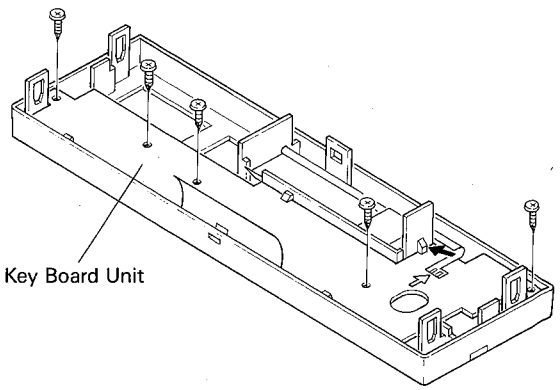


Fig. 5

3. CONNECTOR FUNCTION DESCRIPTION

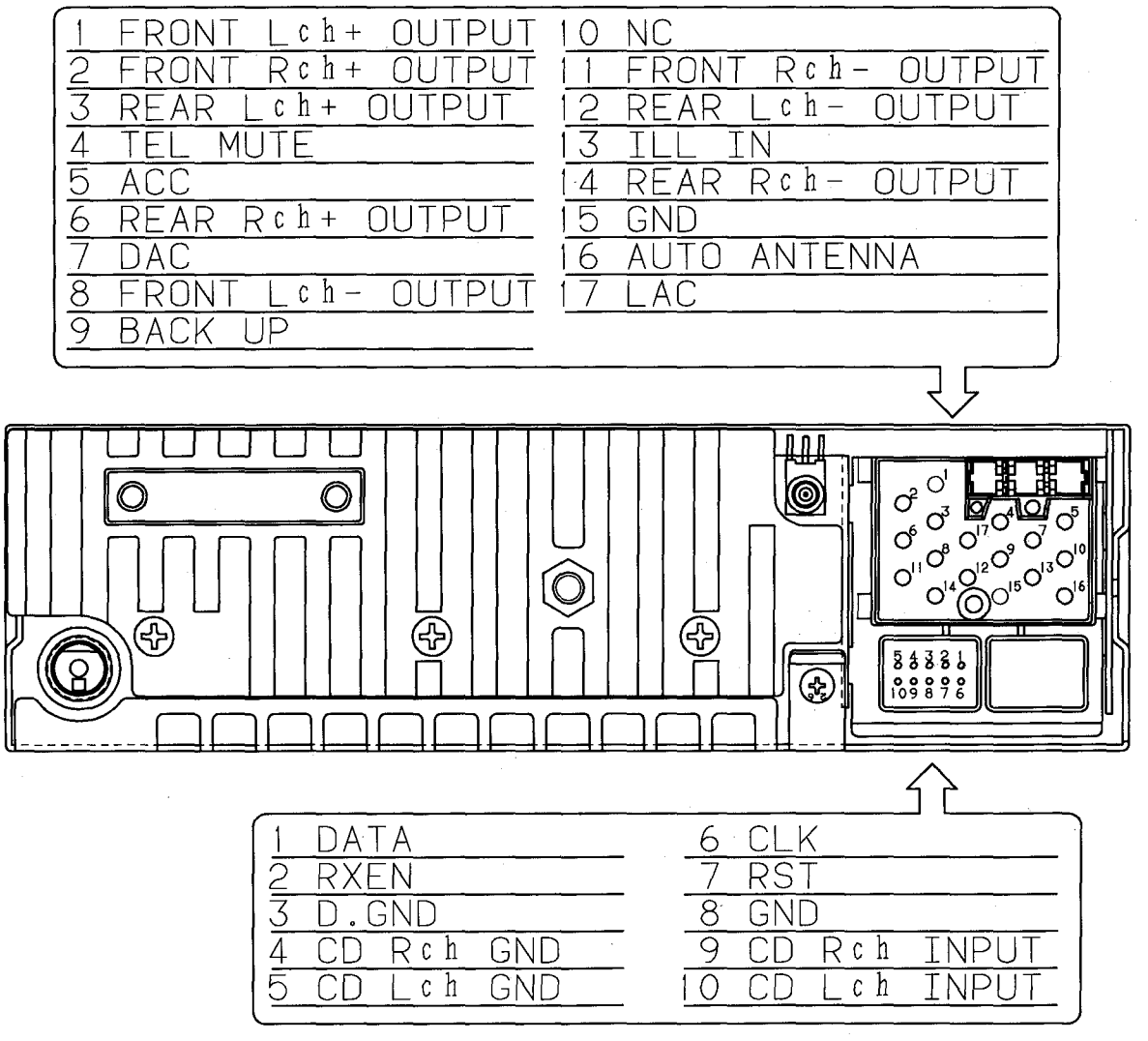


Fig. 6

4. ANTI-THEFT

Your BMW radio will not operate once it is removed from the console, making it virtually useless to a thief. The only way to restore power to the radio once it is removed is to enter a five-digit security code unique to your radio. The anti-theft features of your radio operate as follows:

1. When the ignition key is removed, the red anti-theft LED indicator will flash continuously.

2. If any buttons on the radio are touched after the key is removed, a warning tone will sound for five minutes or until the ignition is turned on. The anti-theft indicator will also flash.

3. A dead battery, electrical repairs, radio removal or reduction of voltage supply to less than a preset value will render the radio inoperable until voltage is restored and the security code is entered. The radio must be turned on before the code is entered. The word "CODE" will show on the display.

4. To enter your security code, which can be found on the two cards supplied to you by BMW, turn the radio on and use the appropriately numbered radio push-button selectors.

   If the correct code is not entered in three successive tries, the radio will not accept another entry until it has been left on for one hour.

Important: If you make a mistake in entering your code, complete the entire sequence before entering the correct code. For example, if your code is 12345, and you mistakenly enter 125, finish the five-digit sequence (45) to complete that entry. The radio will not operate, and the word "CODE" will again appear on the display. Enter the correct code at this time.

Exception: If you hear a beep when entering your code, stop immediately! Begin entering the code again, starting with the first digit.

5. Do not leave the code cards in your car. Place them in your wallet or with your vehicle title papers for security. If you lose the code cards, contact the nearest BMW dealer. He will get your code from BMW. There may be a charge for removing the radio to ascertain its chassis number.

6. If radio or electrical repairs become necessary, please give the repair facility your radio code number. If you do not, only authorized BMW personnel can obtain the code from BMW.

WARNING: FOR YOUR PROTECTION, CODES WILL **NOT** BE GIVEN OUT TO ANYONE–UNDER ANY CIRCUMSTANCES–EXCEPT AUTHORIZED BMW DEALER PERSONNEL AFTER PROOF OF VEHICLE OWNERSHIP AND PROPER IDENTIFICATION IS ESTABLISHED.

5. USING THE RADIO

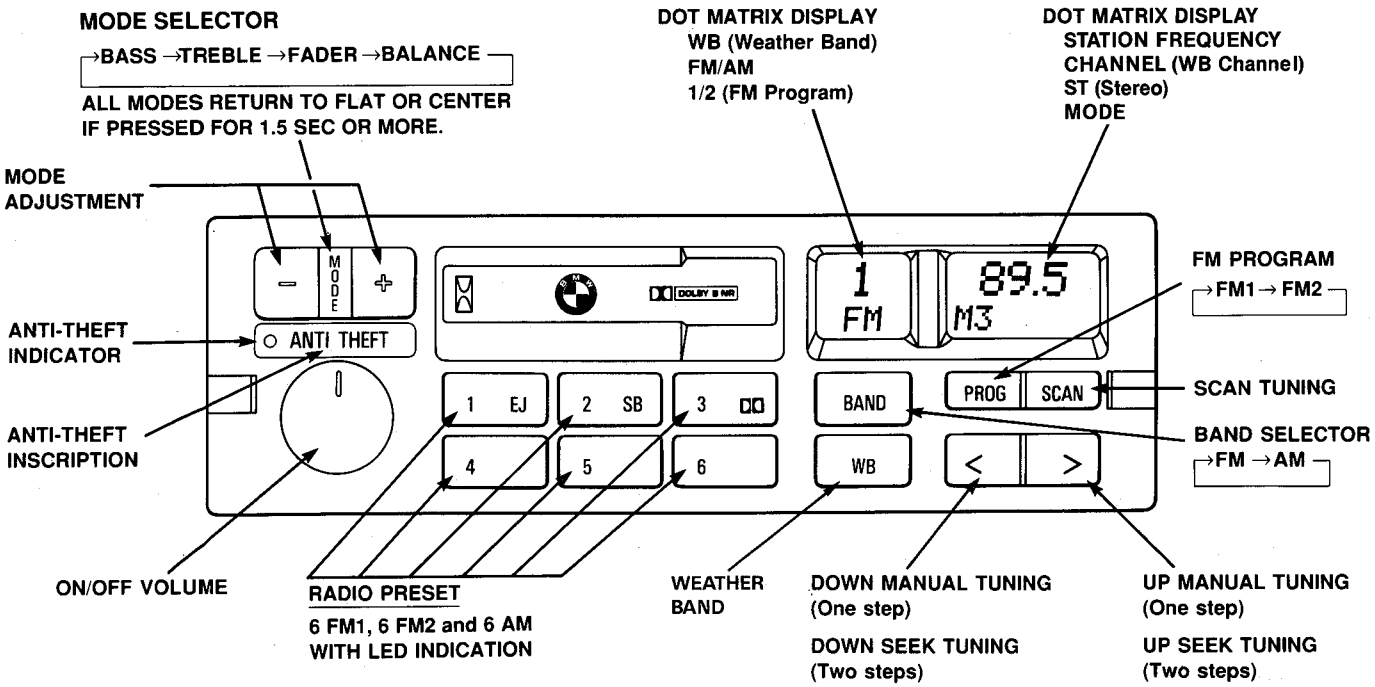


Fig. 7

FM/AM

Press the BAND button and FM or AM will appear on the display indicating which band is being received. When FM or AM is chosen, the currently tuned frequency is also displayed. Press the button to change from band to band. There are two FM program selections: FM1 and FM2. Press the PROG button to switch between them.

WEATHER BAND (WB) AUTOMATIC FREQUENCY SELECTION

When the WB button is pressed, regardless of what source you are currently listening to, weather band seek tuning begins automatically and finds the strongest broadcast frequency. If the broadcast frequency in your area is too weak, or nonexistent, a beep will sound after the WB frequencies have been automatically scanned three times, and NO STATION will appear on the display. If you press the WB button again, the radio returns to the previous source.

NOTE: *In certain areas weather band broadcast frequencies may be too weak for automatic radio scanning. In this situation the weak weather band frequency can be manually tuned with the tuning buttons.*

MANUAL/SEEK TUNING

The TUNING buttons are used for both manual and seek tuning. For manual tuning, press either of the tuning buttons one step. To tune to a higher frequency, press the right button; to tune to a lower frequency, press the left button. For seek tuning, press the right or left button 2 steps (as far as it will go). The radio will automatically tune and lock onto the next higher or lower receivable broadcast frequency. When seek tuning the next higher frequency, the display shows SEEK UP; when seek tuning the next lower frequency, it shows SEEK DN.

STEREO

The ST indicator will light up on the display whenever a stereo station is received. The indicator will flash when signal strength diminishes.

AUTOMATIC LOCAL/DISTANCE SWITCHING

New electronic circuitry automatically selects the local/distance mode for best reception, eliminating the need for manual switching.

SCAN TUNING

Signal scan tuning allows you to tune into each medium-to-strong frequency pausing seven seconds at each. Push the SCAN button once to begin tuning up scale, and press it again during a pause to stop the scanning. The display shows SCAN during scan tuning.

FM RECEPTION

Signal reflections or blockages caused by hills or tall buildings may cause hissing and fluttering noises in FM reception. FM signal strength diminishes beyond 40 km from the transmitter.

PRESET STATION INDICATORS WITH LED

Each PRESET button has a built-in LED. When a PRESET button is pushed, the LED will change from orange to green, indicating selection of that preset frequency. This also causes the display to show the PRESET memory number (for example, M3).

PROGRAMMING/REPROGRAMMING PRESET STATIONS

Tune in the desired radio station. Then push a PRESET selection button for 1.5 seconds. When you hear a beep, the frequency has been memorized. Repeat this procedure for the remaining preset station selectors on the FM (FM1 and FM2) and AM bands.

NOTE: *The radio programming controls have triple functions. Each button can be set to one FM1, one FM2 and one AM station.*

BASS, TREBLE, FADER AND BALANCE CONTROL

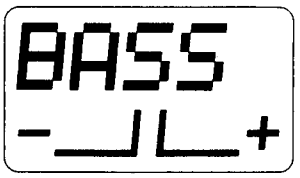
Each time the MODE button is pressed, control of bass, treble, fader, or balance is selected in turn. The selected mode is shown on the display and can be adjusted by the + and — buttons. Approximately five seconds after adjustment, the display returns to its previous state.

When the MODE button is pressed continuously for more than 1.5 seconds, the level of each mode returns to flat or center. At this time a beep is sounded and "FLAT" is displayed on the display.

TELEPHONE MUTING

Should your BMW vehicle be equipped with the cellular telephone with muting feature, the radio volume will be reduced (gradually) when an incoming telephone call is received. Tape cassette/compact disc functions will automatically go into a pause mode. Radio volume is restored after the telephone call has been completed as are tape cassette/compact disc functions.

BASS

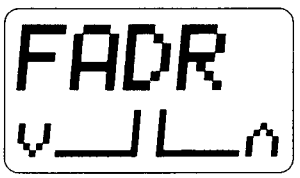


(–) ⟵ • ⟶ (+)
CUT FLAT BOOST

TREBLE

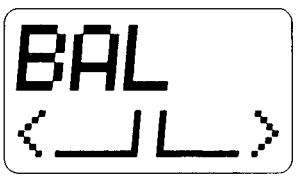
(–) ⟵ • ⟶ (+)
CUT FLAT BOOST

FADER



(–) ⟵ • ⟶ (+)
REAR CENTER FRONT

BALANCE



(–) ⟵ • ⟶ (+)
LEFT CENTER RIGHT

6. USING THE TAPE DECK

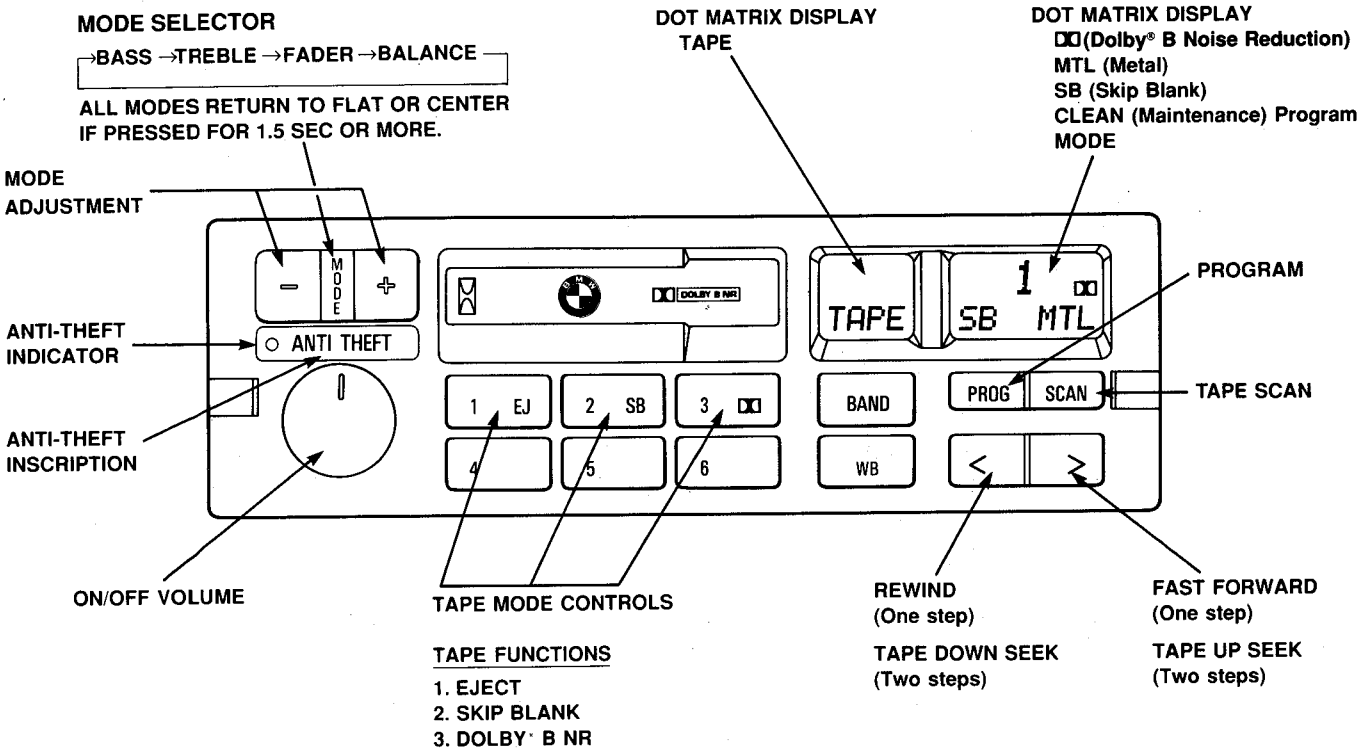


Fig. 8

CASSETTE OPERATION

To use the cassette player, turn the radio on. When a cassette is inserted, the unit will switch automatically from radio to tape mode.

FAST FORWARD/REWIND*

The fast forward/rewind button has a two-step operation. Press the right side of button one step to fast forward; Press the left side of button one step to rewind. Repeat the same action to stop the appropriate function. The logic circuitry in your radio will automatically determine the right direction for fast forward or rewind. While the tape is fast forwarding, the display shows FORWARD; while the tape is rewinding, it shows REWIND.

A standard cassette has two sides and can be played in either direction. When in play, the top side of a cassette will be indicated as "1" on the display. The bottom side will appear as "2".

*Synchro FFR, REW under license of Staar S.A.

TAPE SEEK

Pressing the fast forward/rewind button two steps (as far as it will go) activates the seek mode. To move to the next selection on your tape, press the right side of button (as far as it will go). The display shows SEEK UP. The tape will move rapidly to the next selection. To restart the current selection, press the left side of button in the same manner. The display shows SEEK DN.

Tape Seek will only function correctly if there are four seconds of silence between the selections on your tape. Excessive noise between selections on home-recorded tapes may interfere with these functions.

The cassette automatically ejects from the unit if tape setting operations cannot be completed within a few seconds. This may be caused by a faulty or damaged cassette. Determine the cause of the problem or use a different cassette.

REVERSING TAPE DIRECTION

To reverse tape direction, push the PROG button. Additionally the tape will reverse automatically when a side is complete.

TAPE SCAN

If you wish to scan through the tape until a desired selection is found, press the SCAN button. Each selection on the tape will play for approximately 13 seconds. (The display will show SCAN.) Scanning stops when the SCAN button is pressed again.

AUTOMATIC EQUALIZATION

The playback equalization of normal tapes differs from that of chrome and metal tapes. When a high-bias tape, including metal, is inserted, the unit will automatically change to the correct equalization level, and MTL will be indicated on the display.

TAPE EJECT (1 EJ)

Press the EJECT button—1 EJ—to eject tape cassette and return to the radio mode.

SKIP BLANK (2 SB)

The SKIP BLANK button—2 SB—automatically advances the tape to the next recorded portion when a blank section of tape exceeds approximately 15 seconds. When there is a long, unrecorded portion at the end of the tape, the unit advances the tape to the end and then starts to play the other side. When the SKIP BLANK button is pushed, SB will appear on the display. Additionally, SB will flash while the tape is advancing.

DOLBY® B NOISE REDUCTION (3DD)

Use the Dolby®* B Noise Reduction function — button 3DD— to reduce the level of hiss on Dolby® B-encoded cassettes. If you do not use the Dolby® B noise-reduction function with Dolby® B encoded tapes, the high-frequency response will be intensified. If you do use this function with non-Dolby® B tapes, high-frequency response will be diminished.

*The word "Dolby" and the double-D symbol are registered trademarks of Dolby Laboratories, Inc.

IGNITION-KEY-OFF PAUSE MODE

If the ignition is turned off while a tape is playing, the unit automatically enters the pause mode. The unit will return to normal play mode when the ignition is turned on. The unit will not accept another cassette when it is in the pause mode.

AUTOMATIC TAPE SLACK CANCELLER (ATSC)

The automatic tape slack canceller removes any slack in the tape before play to protect the tape and extend its life.

ROTATING TAPE HEAD

The rotating tape head in your tape cassette player ensures accurate horizontal tape alignment in both directions for optimum sound level reproduction and frequency response.

NOTE: *The BMW Anti-Theft Radio contains a full-logic computer-controlled 3-motor drive which controls the automatic tape slack canceller (ATSC) and rotating tape head mechanism. During cassette tape loading/unloading or tape transport directional changes, the motor drive emits a precision mechanical sound which is indicative of normal tape cassette player operation.*

7. PLAYING THE CD CHANGER

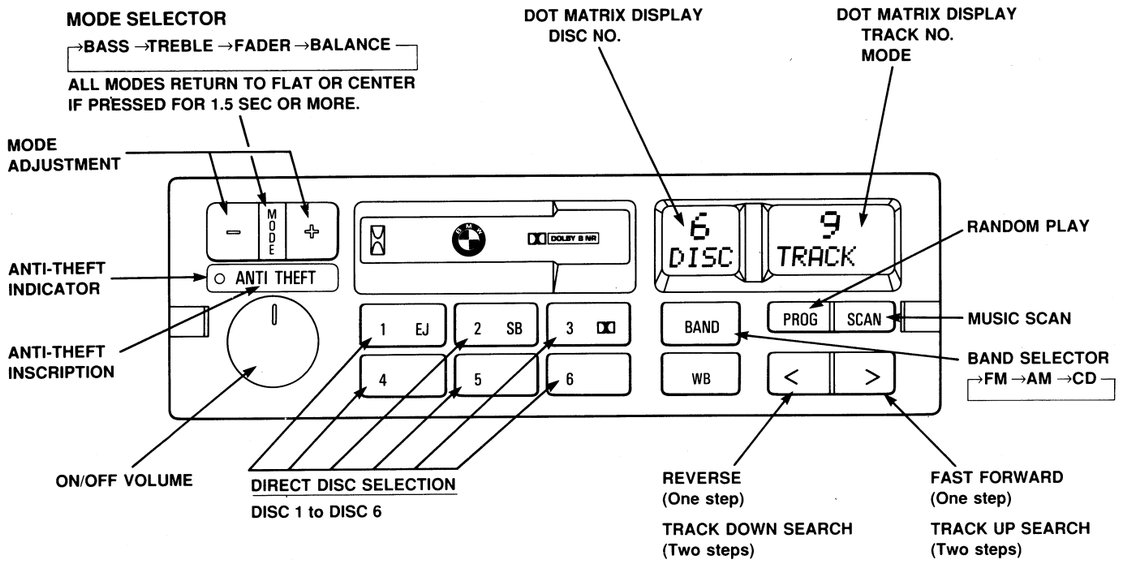


Fig. 9

CD OPERATION

To use the CD player, turn the radio on and press the BAND button. The display indicates FM, AM, or CD. Select CD to switch from radio mode to CD mode.

DIRECT DISC SELECTION

DIRECT DISC SELECT buttons 1 through 6 correspond to the magazine tray numbers. When there is a disc in a tray, the number lights up in orange on the corresponding button. To play a disc in the magazine, press one of the buttons whose indicator is lit. Indicator number on button will turn to green.

***NOTE**: Nothing will happen if you press a button whose indicator is not lit. The display will read "NO DISC" for approximately 10 seconds.*

FAST FORWARD/REVERSE

The fast forward/reverse button has a two-step operation. Press the right side of button one step to fast forward; press the left side of button one step to reverse. During the fast forward operation, the display shows FORWARD; during the reverse operation, it shows REVERSE.

TRACK SEARCH

Pressing the fast forward/reverse button two steps (as far as it will go) activates the track search mode. To advance to the next track, press the right side of button (as far as it will go). To return to the previous track, press the left side of button in the same manner push and hold the button down (as far as it will go) to move forward or backward through the tracks.

MUSIC SCAN

When the SCAN button is pressed, the word "SCAN" appears on the display and the player begins playing the first part (approximately 10 seconds) of each track on the current disc. Press the button again when you find a track you want to listen to: the player will return to normal playback and continue with the current track.

RANDOM PLAY

Press the PROG button for random play. (RANDOM appears on the display.) This function randomly plays one track after another, choosing from all the tracks on all the discs in the magazine randomly. Press the PROG button again to cancel random play.

***NOTE**: Since tracks are selected at random, it is possible that the same track may be played twice in succession.*

MAGAZINE CHECK

When there is no magazine in the CD changer, the word "NO MAGAZIN" appears on the display to advise you to load a magazine.

***NOTE**: After you load a magazine, there is a short pause before playback begins. The changer is checking each of the trays for discs in the magazine. (The display indicates "DISC CHECK".)*

DISC CHECK

A "DISC ERROR" indication is shown on the display and operation of the system becomes impossible when there are no discs in the magazine or when the discs are loaded into the magazine with their labels facing upwards. Whenever this message appears, remove the magazine and check the discs.

Important: "HIGH TEMP" appears on the display and playback automatically stops when the temperature around the CD changer becomes too high. This protects the laser mechanism from serious damage. Listen to the radio or a tape until the temperature returns to normal. When the temperature around the CD changer becomes low, the display shows "LOW TEMP." The CD changer will continue to operate.

8. BLOCK DIAGRAM

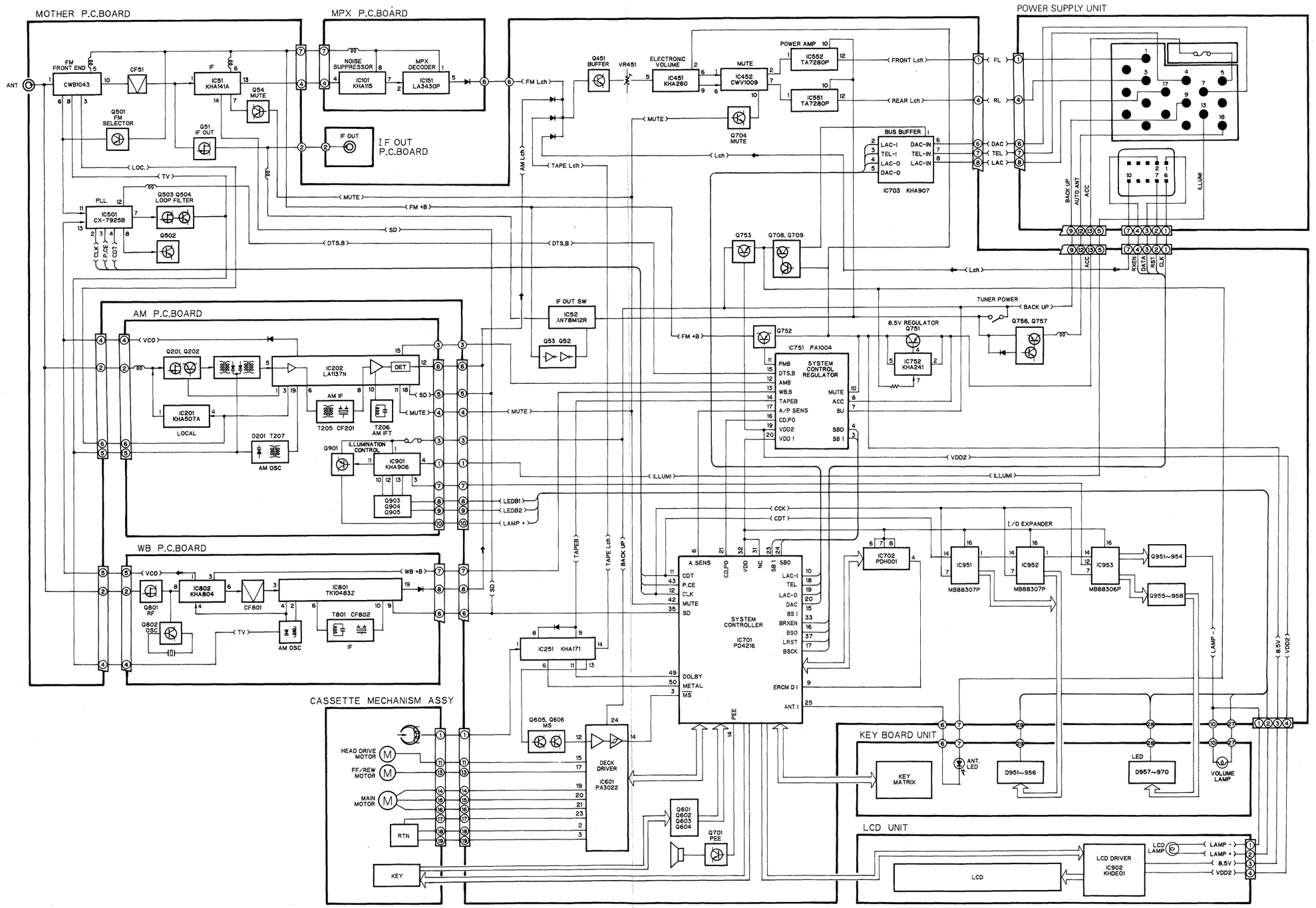


Fig. 10

9. ADJUSTMENT

9.1 TEST MODE

Test mode is mainly used in adjustment of CD multi-player (CDX-M91ZBM).

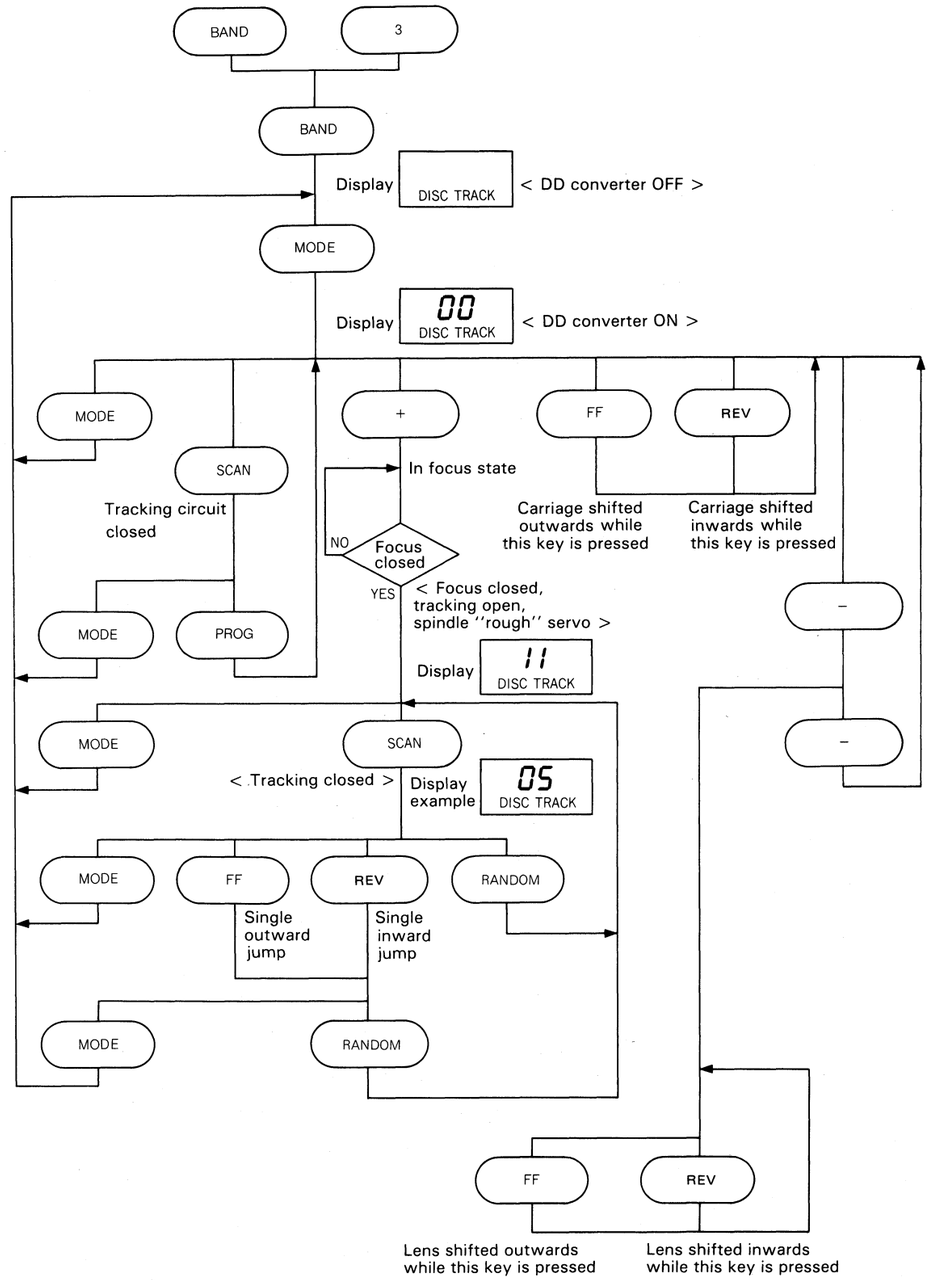
- Switching to test mode
  While pressing the BAND, 3 keys together, switch the back-up ON.
- Canceling test mode
  Switch the CD multi-player and KE-91ZBM back-up OFF.
- Key functions during test mode
  The CD multi-player, deck and tuner are selected by the BAND key.

a) CD multi-player

Key	Function
MODE	DD converter ON/OFF
FF	FWD kick
REV	REV kick
SCAN	Tracking close
RANDOM	Tracking open
+	Focus close
–	Carriage/tracking switching

NOTE:
Concerning operation in the test mode.
(1) Continuous carriage movement is not possible by pressing the FF or REV keys. Either press the keys repeatedly or move the carriage manually.
(2) Spindle kick is not possible during focus search. Rotate the disc manually (i.e. at first rotate it a little by hand, and then it will continue to rotate).

- **Flow Chart**



9.2 AUDIO/TUNER ADJUSTMENT

NOTICE:
SELECT C1 so that total capacity of 80pF is attained from the direction of the receiver jack.
Z: Output impedance of SSG.

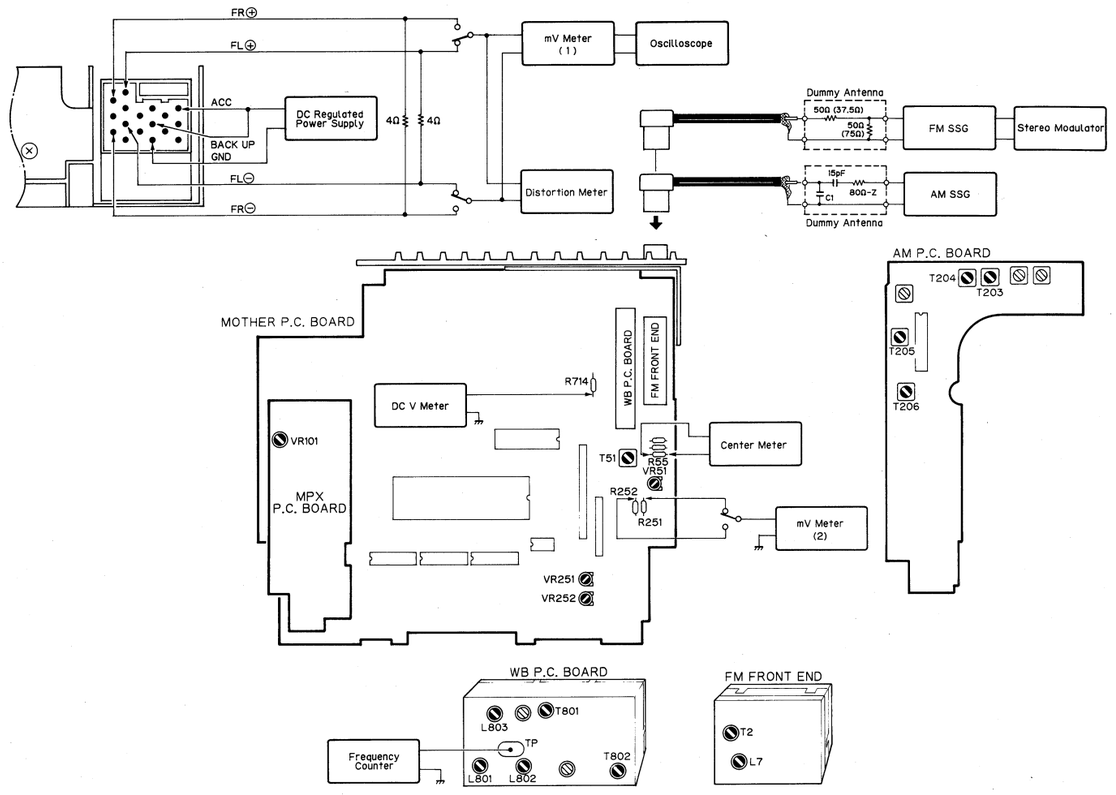


Fig. 11

FM ADJUSTMENT

※ Stereo MOD.: 1kHz, L+R=90%, Pilot=10%

	No.	FM SSG (400Hz, 100%)		Displayed Frequency (MHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (MHz)	Level (dBμV)			
IF	1	98.1 Unmodulated	60	98.1	T51	Center Meter:0
Front End	1			F_{MIN}	L7	DC V Meter (1): 6.7±0.2V
	2			F_{MAX}	——	Verify that DC V Meter is more than 2.2±0.6V.
	3	98.1	15	98.1	T2	mV Meter (1): Maximum
MPX	1	98.1※	60	98.1	VR101	mV Meter (1): Best separation
	2	98.1※	35	98.1	VR51	mV Meter (1): Separation 5dB

	F_{MIN} (MHz)	F_{MAX} (MHz)
KE-91ZBM/US	87.9	107.9
KE-91ZBM/ES	87.5	108.0

WB ADJUSTMENT (KE-91ZBM/US)

	No.	FM SSG (400Hz, 100%)		Displayed Frequency (MHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (MHz)	Level (dBμV)			
	1			CH-3/WB	L803	Frequency Counter: 151.775kHz NOTE: After adjusting L803, disconnect freqency counter.
	2	162.400	60	CH-2/WB	Volume control knob	mV Meter (1): 10dBs
	3	162.400	60	CH-2/WB	T802	Distortion Meter: Minimum
	4	162.475	10-15	CH-3/WB	L801, L802	mV Meter (1): Maximum
	5	162.475	10-15	CH-3/WB	T801	mV Meter (1): Maximum

AM (MW) ADJUSTMENT

	No.	AM SSG (400Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dBμV)			
Tuning Volt	1	FMAX	—	FMAX	——	DC V Meter: Less than 8.0V
	2	FMIN	—	FMIN	——	DC V Meter: More than 0.8V
Tracking	1	A	20	A	T203, 204, 205, 206	mV Meter (1) : Maximum
	2	A B C	35	A B C	——	The differrence between the maximum and minimum output levels at AkHz, BkHz and CkHz must must be 6dB or less.

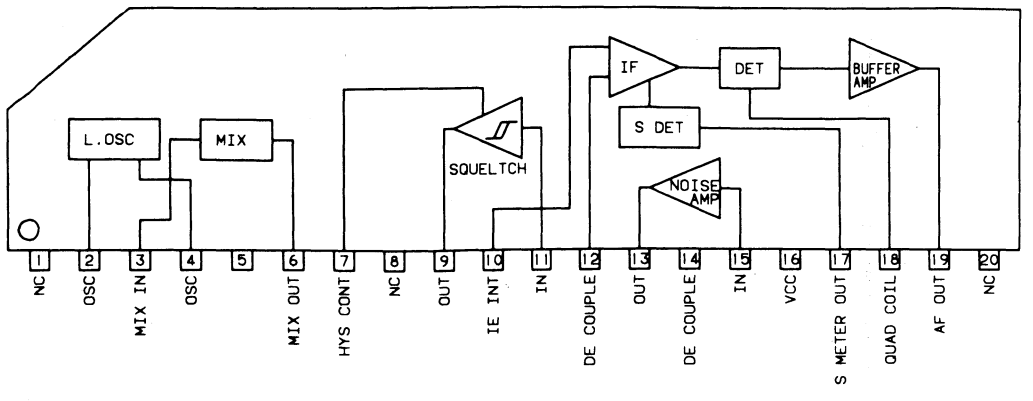
	FMIN (kHz)	A (kHz)	B (kHz)	C (kHz)	FMAX (kHz)
KE-91ZBM/US	530	600	1,000	1,400	1,710
KE-91ZBM/ES	531	603	999	1,395	1,602

DOLBY NR ADJUSTMENT

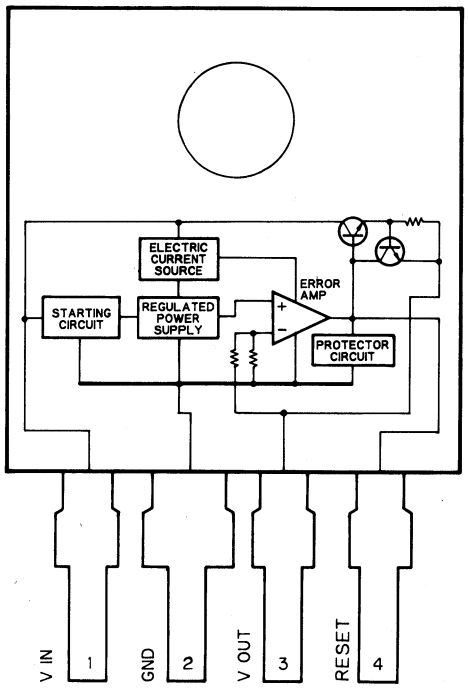
No.	Cassette Tape	Adjusting Point	Adjustment Method (Switch Position)
1	NCT-150 (400Hz, 200nwb/m)	VR251 (Lch) VR252 (Rch)	mV Meter (2) : 337mV (-7.2dBs) (DOLBY NR Switch: OFF)

- **ICs**

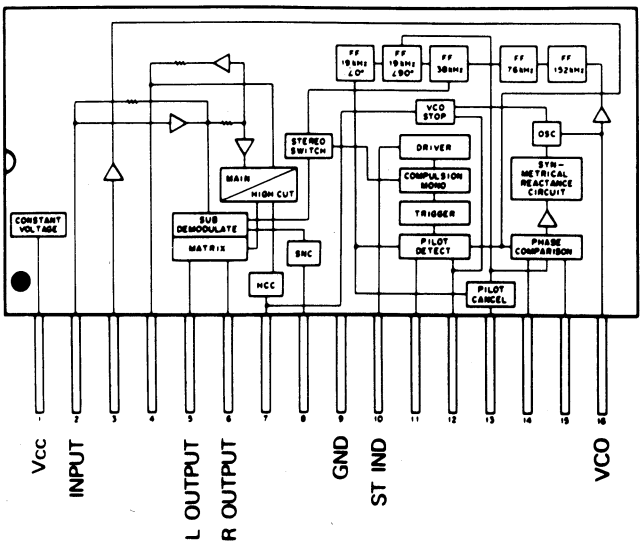
TK10483Z



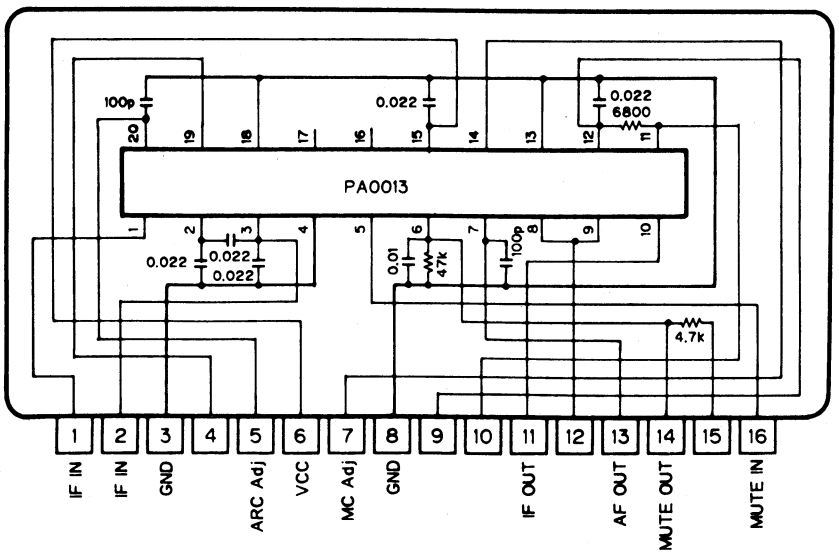
AN78M12R



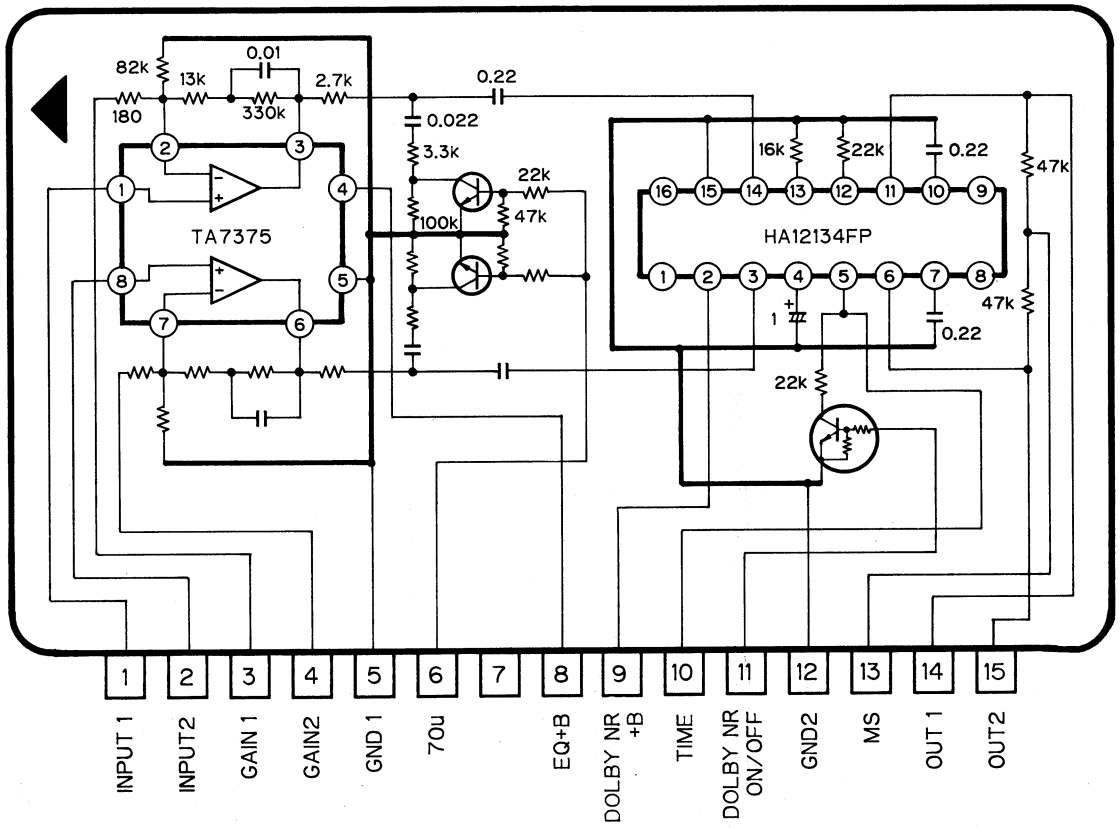
LA3430P



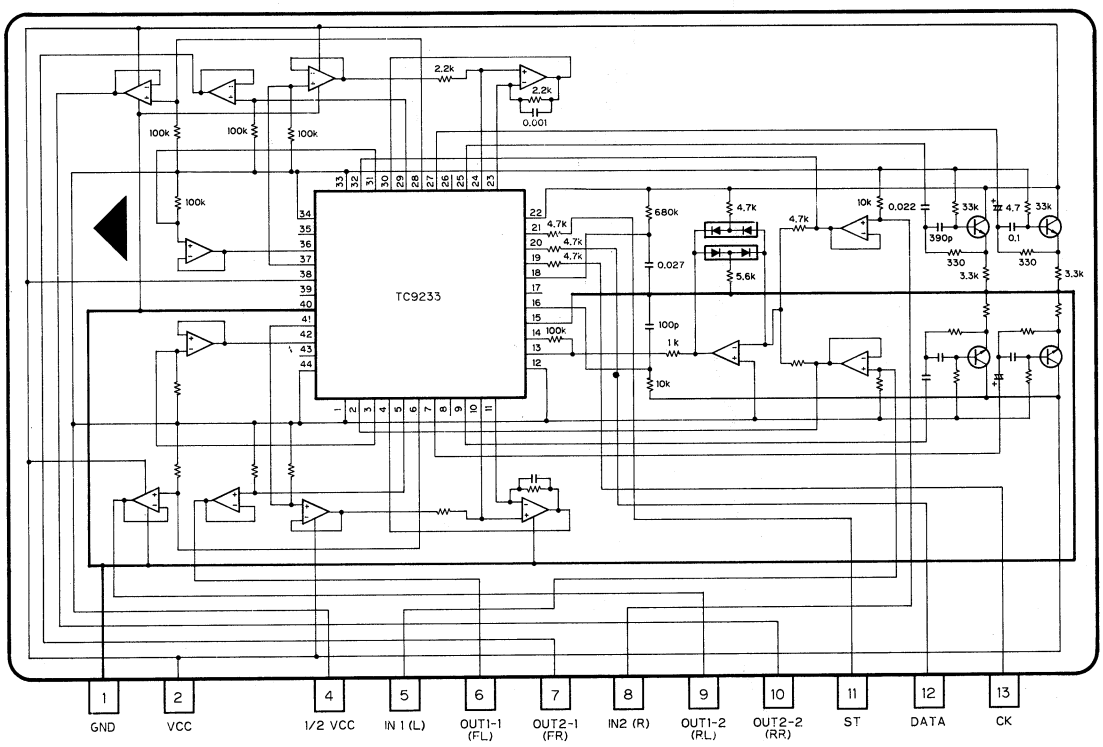
KHA141A



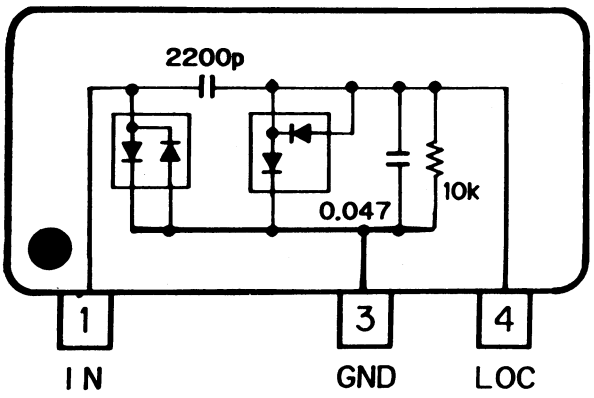
KHA171



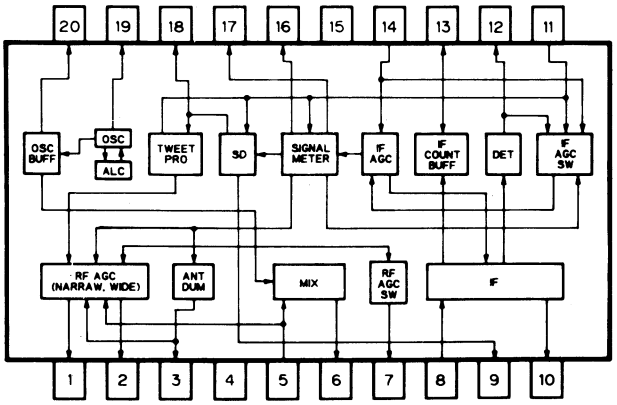
KHA260



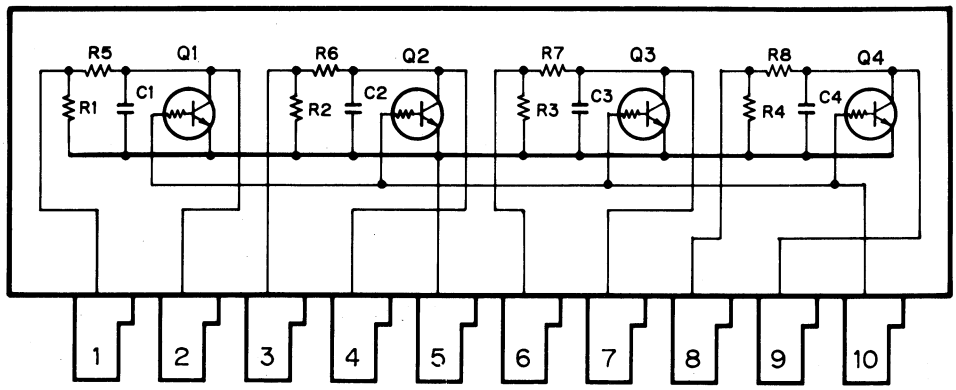
KHA507A



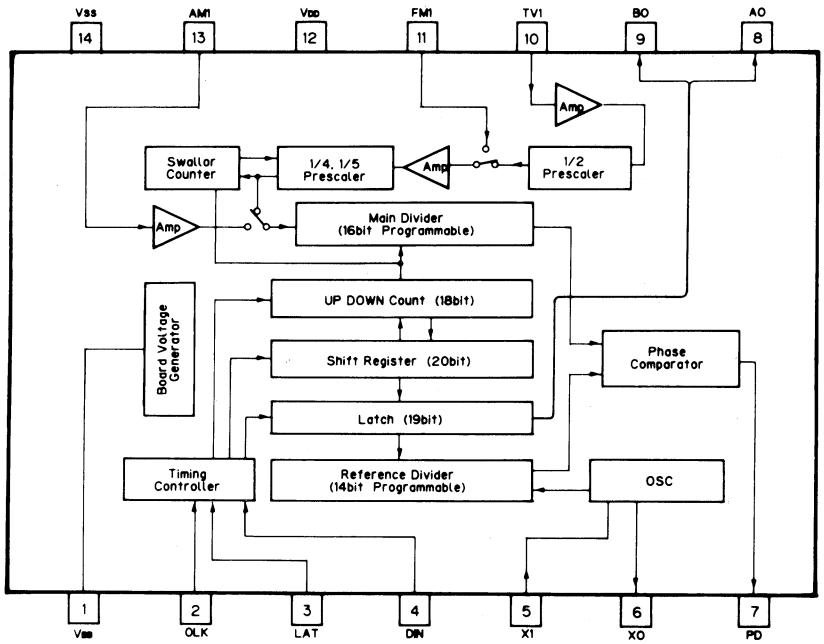
LA1137N



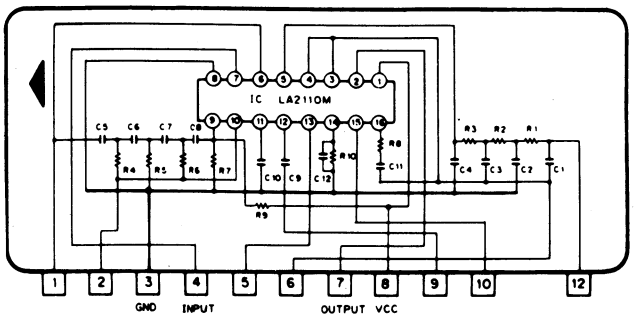
CWV1009



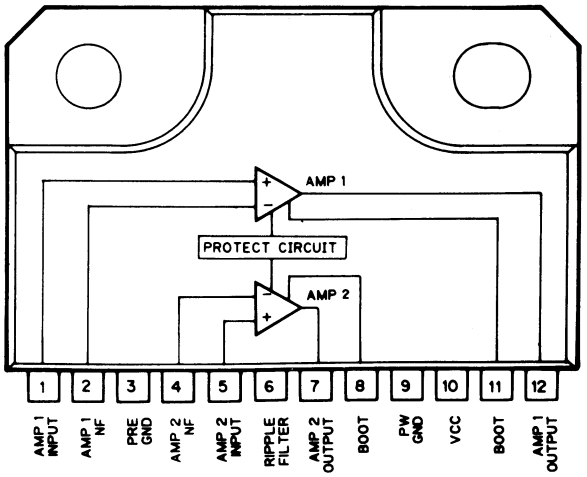
CX-7925B



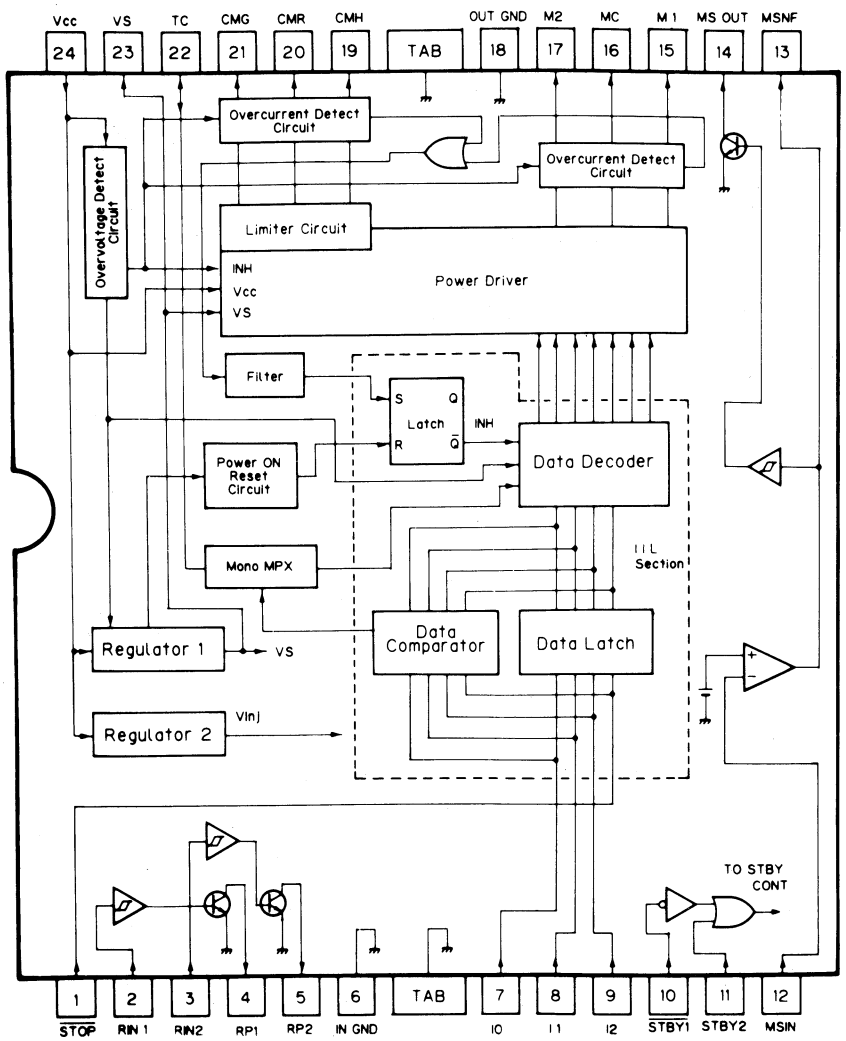
KHA115



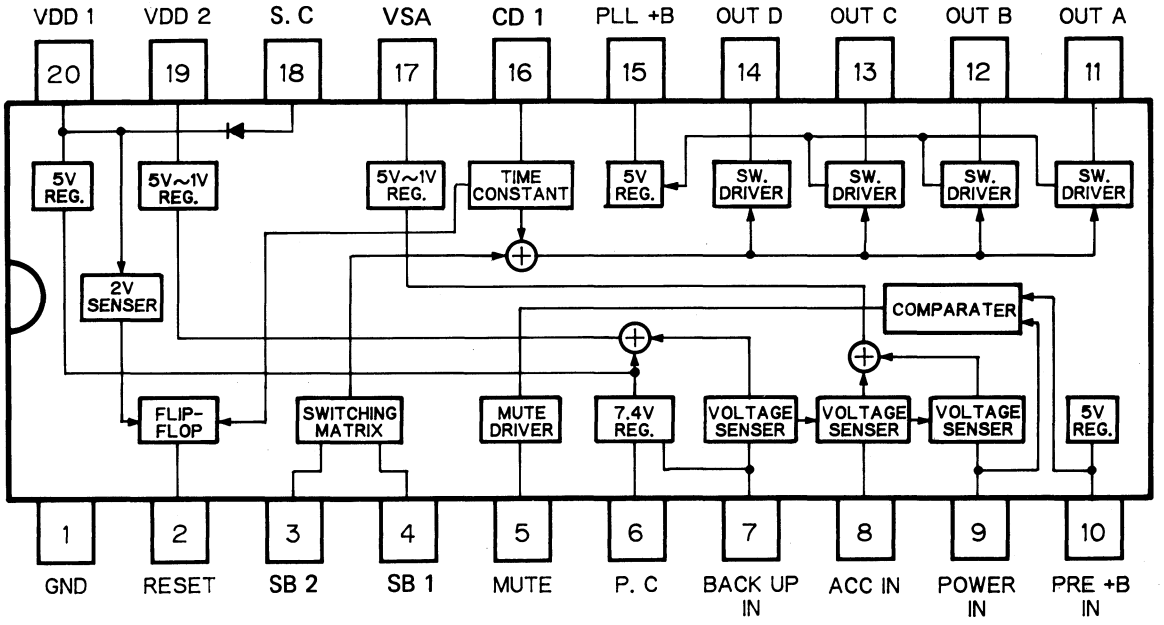
TA7280P



PA3022



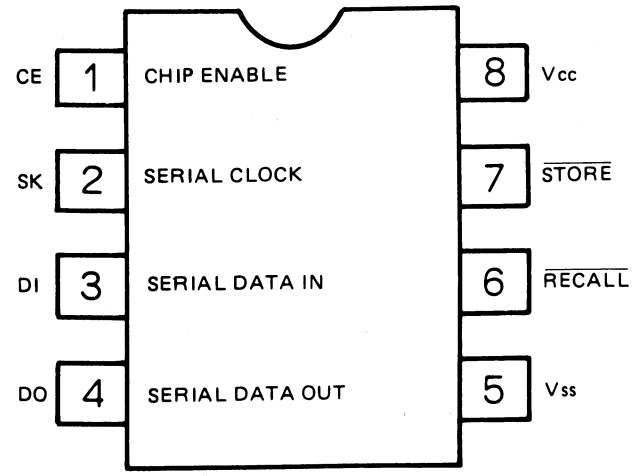
PA1004A



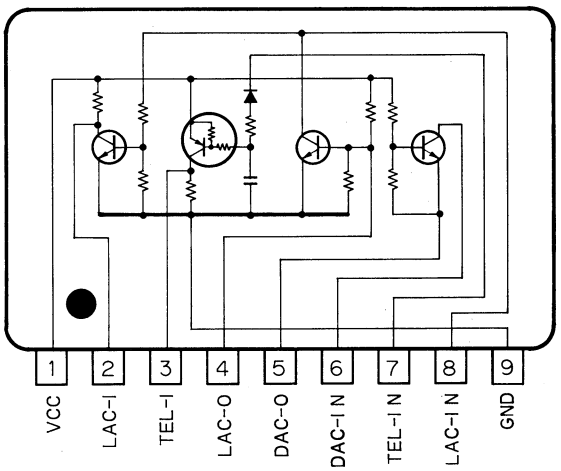
• Pin Function (PA1004A)

Pin No.	Pin Name	Function and Operation
1	GND	GND
2	RESET	Reset puls output.
3	SB2	Switch matrix input.
4	SB1	
5	MUTE	Mute signal output.
6	P.C	Power control.
7	BACK UP IN	Back UP + B input.
8	ACC IN	ACC + B input.
9	POWER IN	Power + B input.
10	PRE + B IN	PRE + B input.
11	OUT A	FM + B output.
12	OUT B	AM + B output.
13	OUT C	WB + B output.
14	OUT D	TAPE + B output.
15	PLL + B	PLL + B output.
16	CD1	Timing capacitor terminal.
17	VSA	Power + B/ACC + B detector output. 0 — 1 — 5V three state output.
18	S.C	VDD maintain capacitor terminal.
19	VDD2	5V output.
20	VDD1	

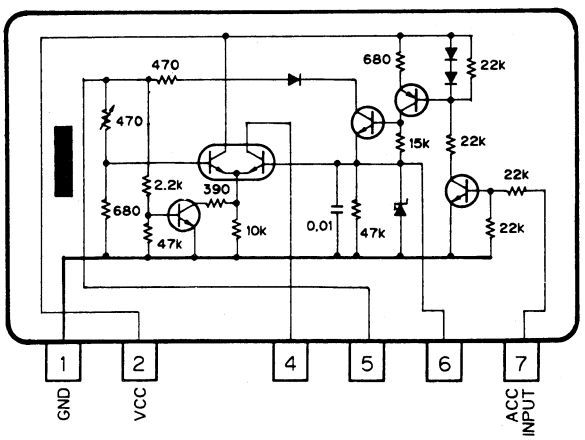
PDH001



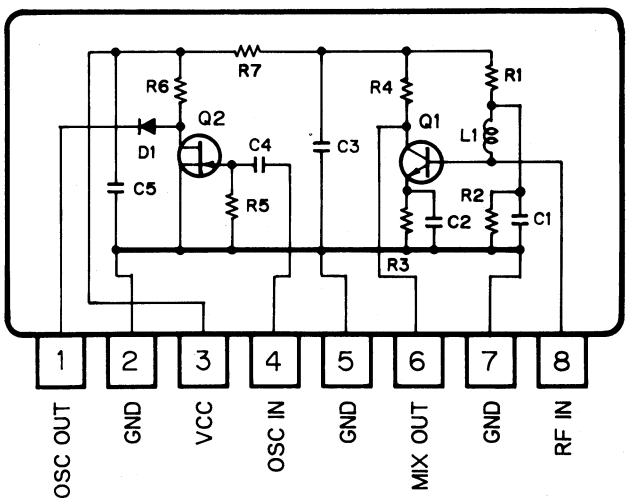
KHA907



KHA241

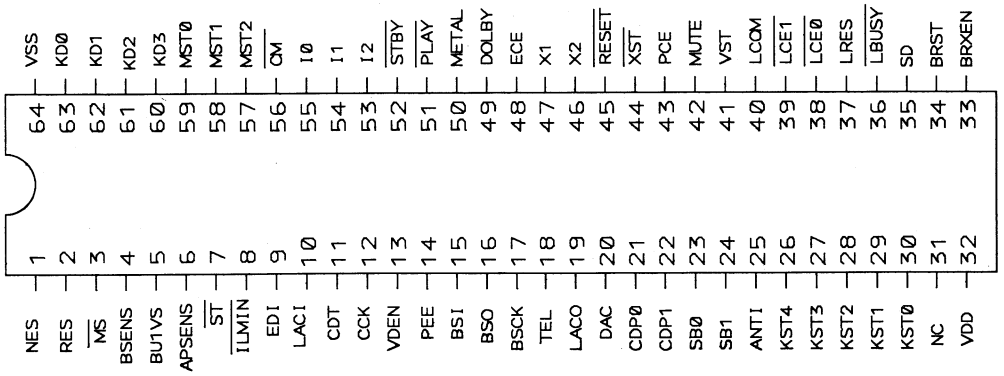


KHA804



*PD4216A

*IC's marked by * are MOS type.*
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

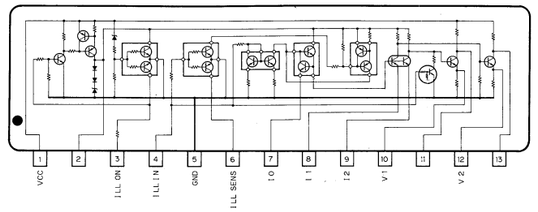


• Pin Function (PD4216A)

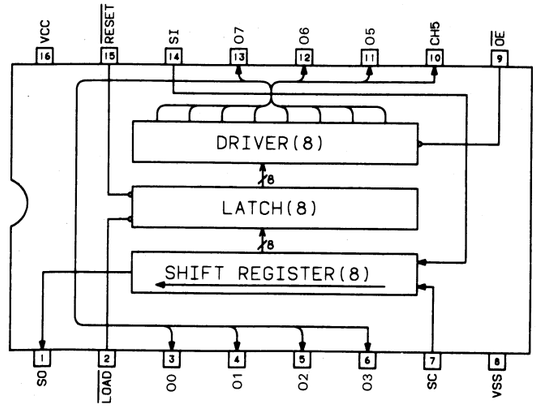
Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	NES	Input		Reel pulse input pin for forward side of the tape
2	RES	Input		Reel pulse input pin for reverse side of the tape
3	$\overline{MS}$	Input		Tape MS signal input pin
4	BSENS	Input		Back up power 7V sense input pin
5	BU1VS	Input		Back up power 1V sense input pin
6	APSENS	Input		ACC power sense input pin
7	$\overline{ST}$	Input		Stereo input pin
8	$\overline{TLMIN}$	Input		Illumination power sense input pin
9	EDI	Input		Serial data input pin for EEPROM(IC702)
10	LACI	Input		Combination cluster control input pin
11	CDT	Output		Common data output pin
12	CCK	Output		Common clock output pin
13	VDEN	Output	C	Data enable pin for electronic volume(IC451)
14	PEE	Output	C	Beep tone output pin
15	BSI	Input		Bus communication serial data input pin
16	BSO	Output	C	Bus communication serial data output pin
17	BSCK	Input/ Output	C	Bus communication serial clock input/output pin f=65kHz
18	TEL	Output	C	Telephone mute input pin
19	LACO	Output	C	Combination cluster control output pin
20	DAC	Output	C	Combination cluster data output pin
21 22	CDPW0 CDPW1	Output	C	CD power control pin
23 24	SB0 SB1	Output	C	Power supply IC control pin
25	ANTI	Output	C	Anti-theft LED control
26 | 30	KST4 | KST0	Output	C	Key matrix strobe output pins
31	NC			
32	VDD			Device power supply pin
33	BRXEN	Input/ Output		Bus communication reception enable pin

Pin No.	Pin Name	I/O	Output Format	Function and Operation
34	BRST	Output	C	Bus communication reset output pin
35	SD	Input		SD input pin
36	$\overline{\text{LBUSY}}$	Input		LCD Driver busy input pin
37	LRES	Output	C	LCD Driver reset output pin
38	$\overline{\text{LCE0}}$	Output	C	LCD Driver chip enable pin
39	$\overline{\text{LCE1}}$	Output	C	LCD Driver chip enable pin
40	LCOM	Output	C	LCD Driver COMMAND/$\overline{\text{DATA}}$
41	VST	Output	C	Strobe pulse output pin for electronic volume (IC451)
42	MUTE	Output	C	System mute output pin
43	PCE	Output	C	PLL IC(IC501) chip enable pin
44	$\overline{\text{XST}}$	Output	C	Strobe pulse output pin for expander IC
45	$\overline{\text{RESET}}$	Input		Reset input pin
46 47	X2 X1			Crystal oscillator connection pins
48	ECE	Output	C	Chip enable pin for EEPROM(IC702)
49	DOLBY	Output		Dolby NR ON/OFF output pin
50	METAL	Output	C	Tape METAL ON/OFF select output pin
51	PLAY	Output	C	Tape MS filter select output pin
52	STBYI	Output	C	Standby output pin for mechanism driver(IC610)
53 54 55	I2 I1 I0	Output	C	Data output pins for mechanism driver(IC601)
56	CM	Output	C	Capstan motor ON/OFF control output pin
57 | 59	MST2 | MST0	Output	C	Mechanism switch, strobe output pins
60 | 63	KD3 | KD0	Input		Mechanism switch sense input pins
64	VSS			GND terminal

KHA906



MB88307P, MB88306P



• FM FRONT END (CWB1043)

NOTE
Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

FM FRONT END (CWB1043)

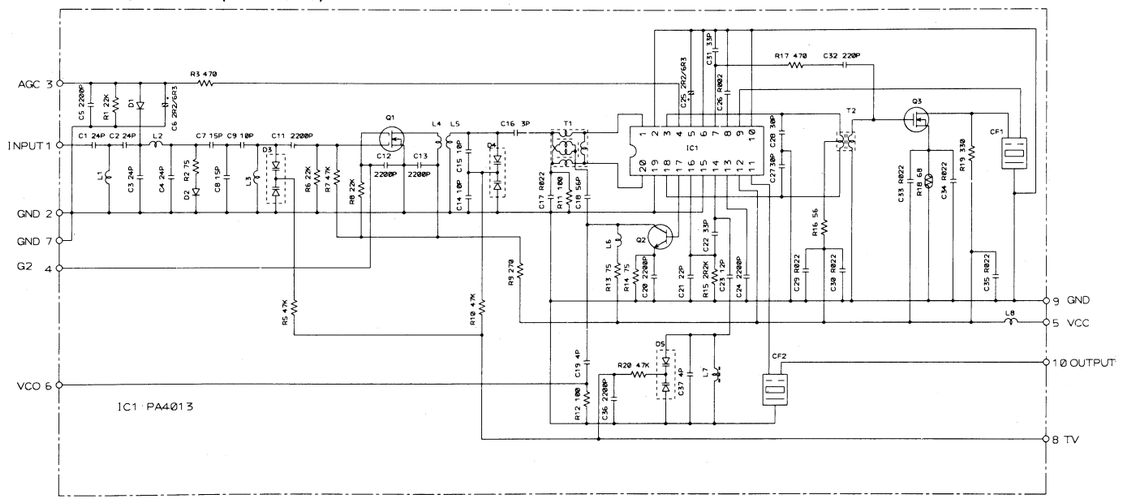


Fig. 12

- **LCD Unit**

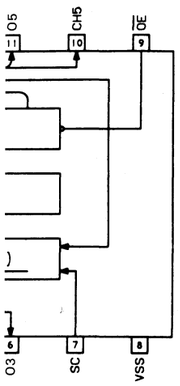


Fig. 12

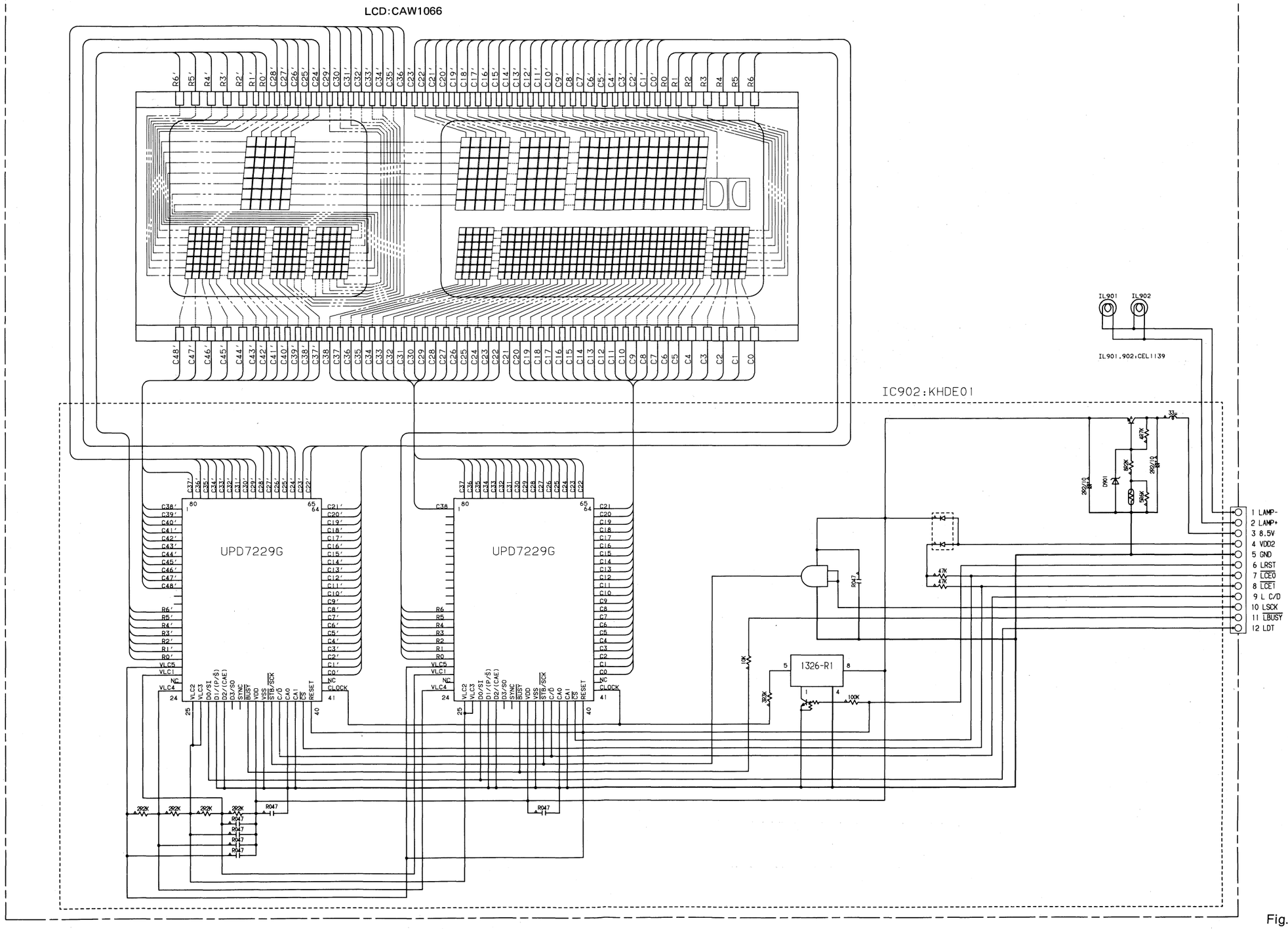
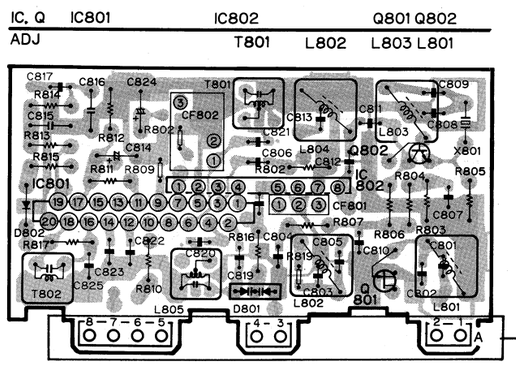


Fig. 13

10. CONNECTION DIAGRAM

WB P.C. BOARD



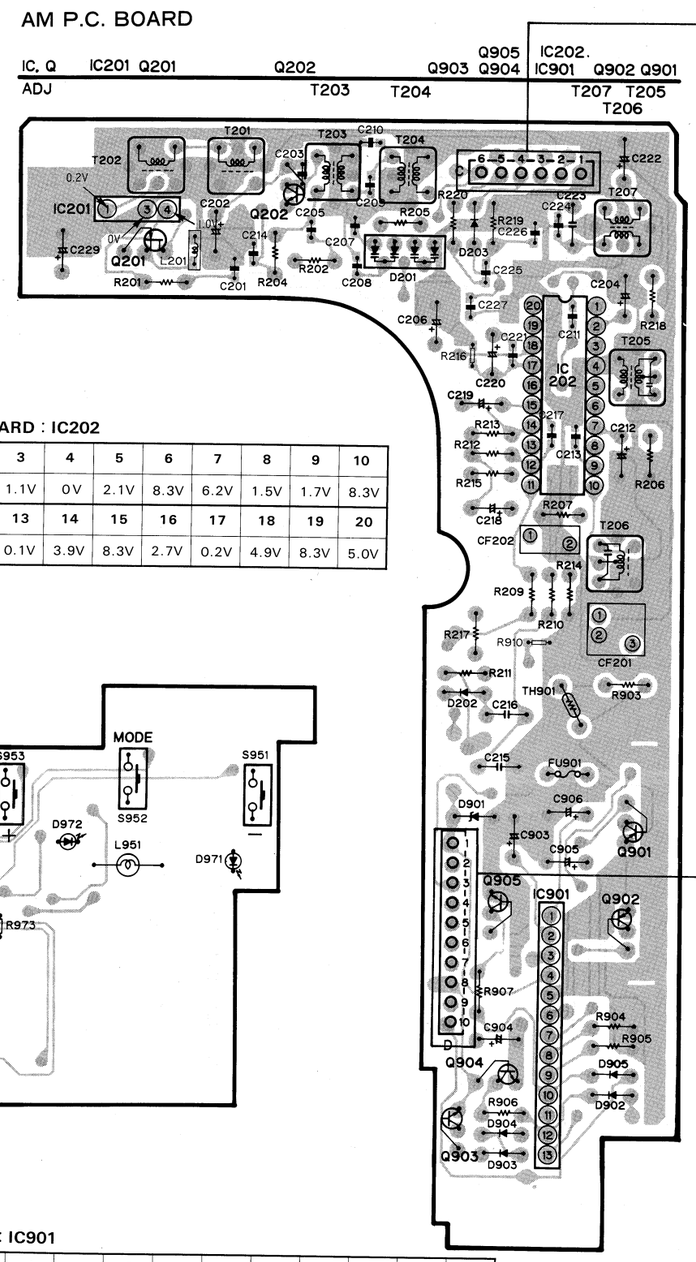
WB P.C.BOARD : IC802

1	2	3	4	5	6	7	8
1.6V		7.8V		7.8V	8.5V		4.7V

WB P.C.BORD : IC801

1	2	3	4	5	6	7	8	9	10
–	8.2V	1.8V	7.5V	0V	7.9V	0.5V	–	8.0V	7.3V
11	12	13	14	15	16	17	18	19	20
0V	7.3V	–	7.3V	–	8.2V	0V	8.2V	8.2V	0V

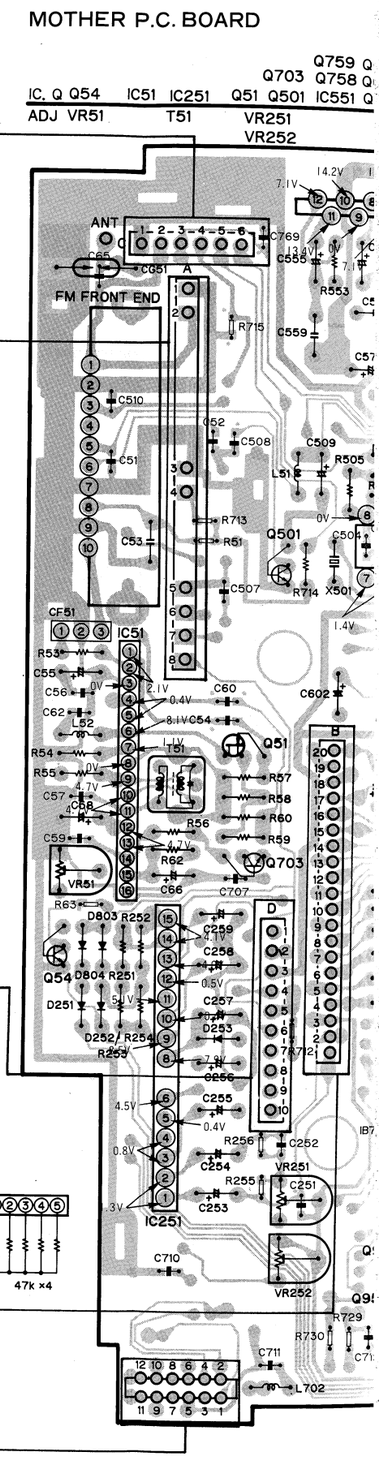
AM P.C. BOARD



AM P.C.BOARD : IC202

1	2	3	4	5	6	7	8	9	10
2.3V	1.4V	1.1V	0V	2.1V	8.3V	6.2V	1.5V	1.7V	8.3V
11	12	13	14	15	16	17	18	19	20
7.0V	3.8V	0.1V	3.9V	8.3V	2.7V	0.2V	4.9V	8.3V	5.0V

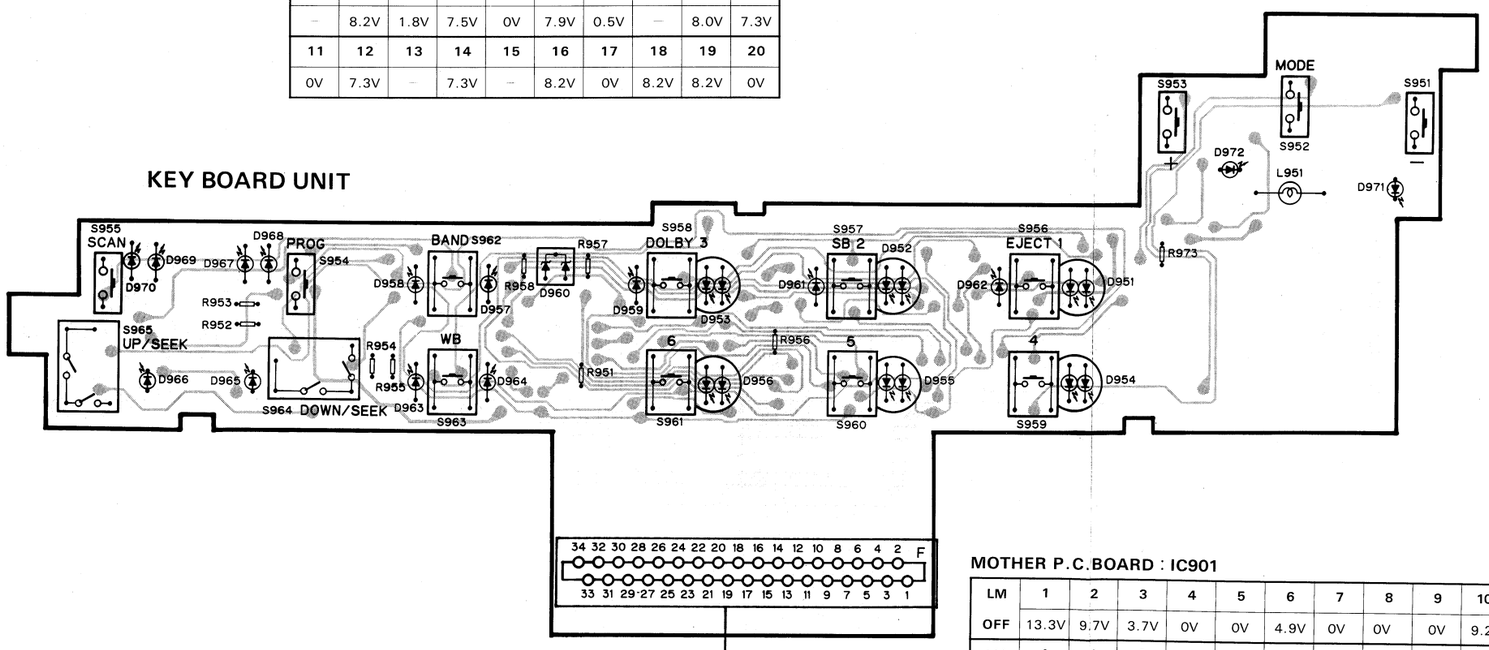
MOTHER P.C. BOARD



MOTHER P.C. BOARD: IC751

1	2	3	4
0V	5.1V		
5	6	7	8
0V	8.9V	13.3V	14.3V
9	10	11	12
14.3V	8.3V	7.4V	8.2V
13	14	15	16
8.2V	8.2V	5.1V	4.0V
17	18	19	20
5.1V	5.1V	5.7V	5.1V

KEY BOARD UNIT

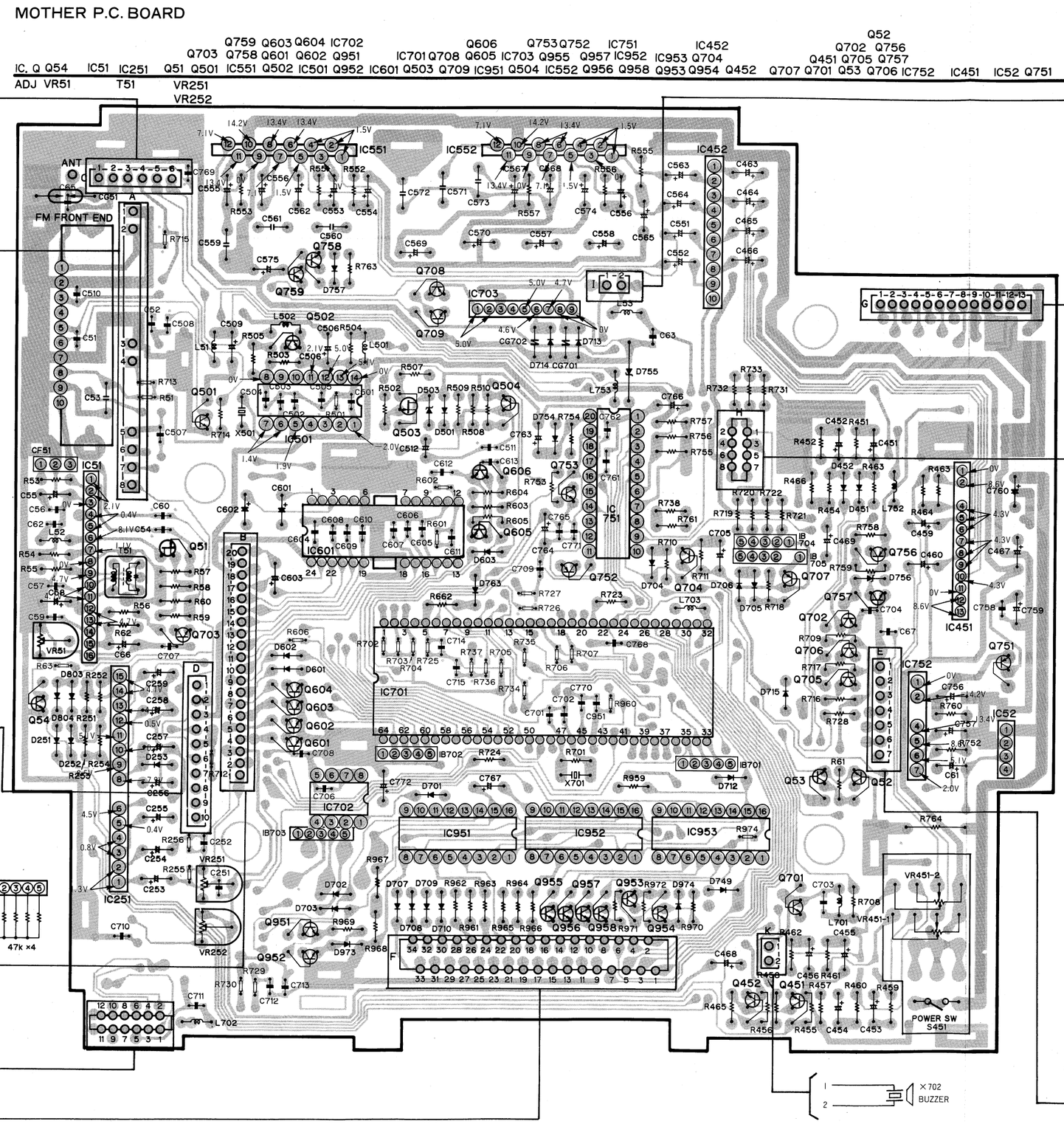


MOTHER P.C.BOARD : IC901

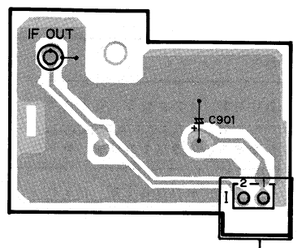
LM	1	2	3	4	5	6	7	8	9	10	11	12	13
OFF	13.3V	9.7V	3.7V	0V	0V	4.9V	0V	0V	0V	9.2V	12.7V	7.9V	12.7V
LM	1	2	3	4	5	6	7	8	9	10	11	12	13
ON	13.3V	9.7V	3.7V	8.0V	0V	0V	0V	0.2V	0.3V	8.1V	12.7V	7.9V	12.7V

MOTHER P.C. BOARD

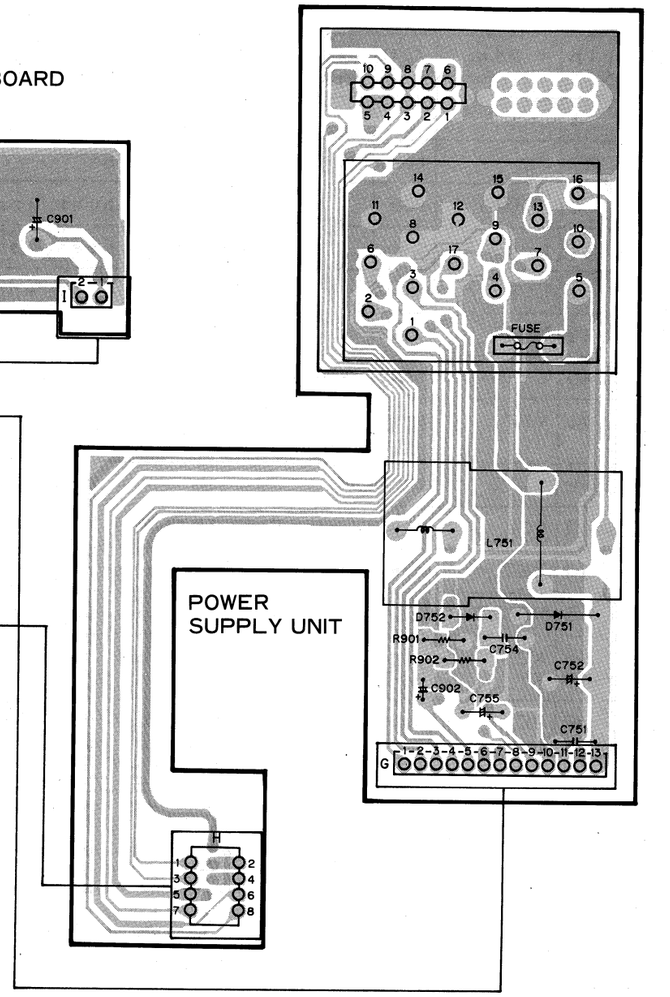
IC, Q	Q54	IC51	IC251	Q51	Q501	Q703	Q759	Q758	Q603	Q601	Q604	Q602	IC702	IC551	Q502	IC501	Q951	Q952	IC601	Q503	Q709	Q606	Q605	IC703	Q504	IC951	Q753	Q955	Q752	Q957	Q956	IC552	Q958	IC751	IC952	Q953	IC953	Q704	IC452	Q954	Q452	Q707	Q52	Q702	Q701	Q756	Q702	Q705	Q757	Q53	Q706	IC752	IC451	IC52	Q751
ADJ	VR51		T51		VR251 VR252																																																	



IF OUT P.C. BOARD

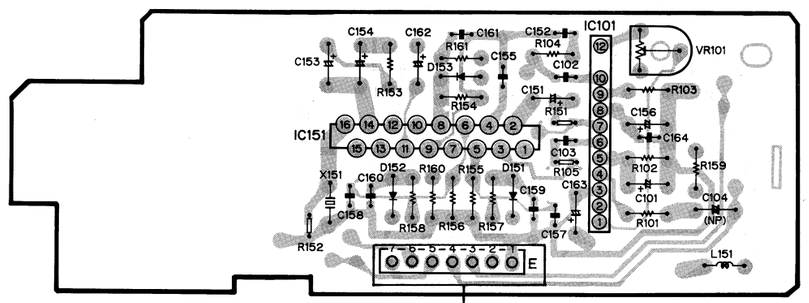


POWER SUPPLY UNIT



MPX P.C. BOARD

IC	IC151	IC101
ADJ		VR101

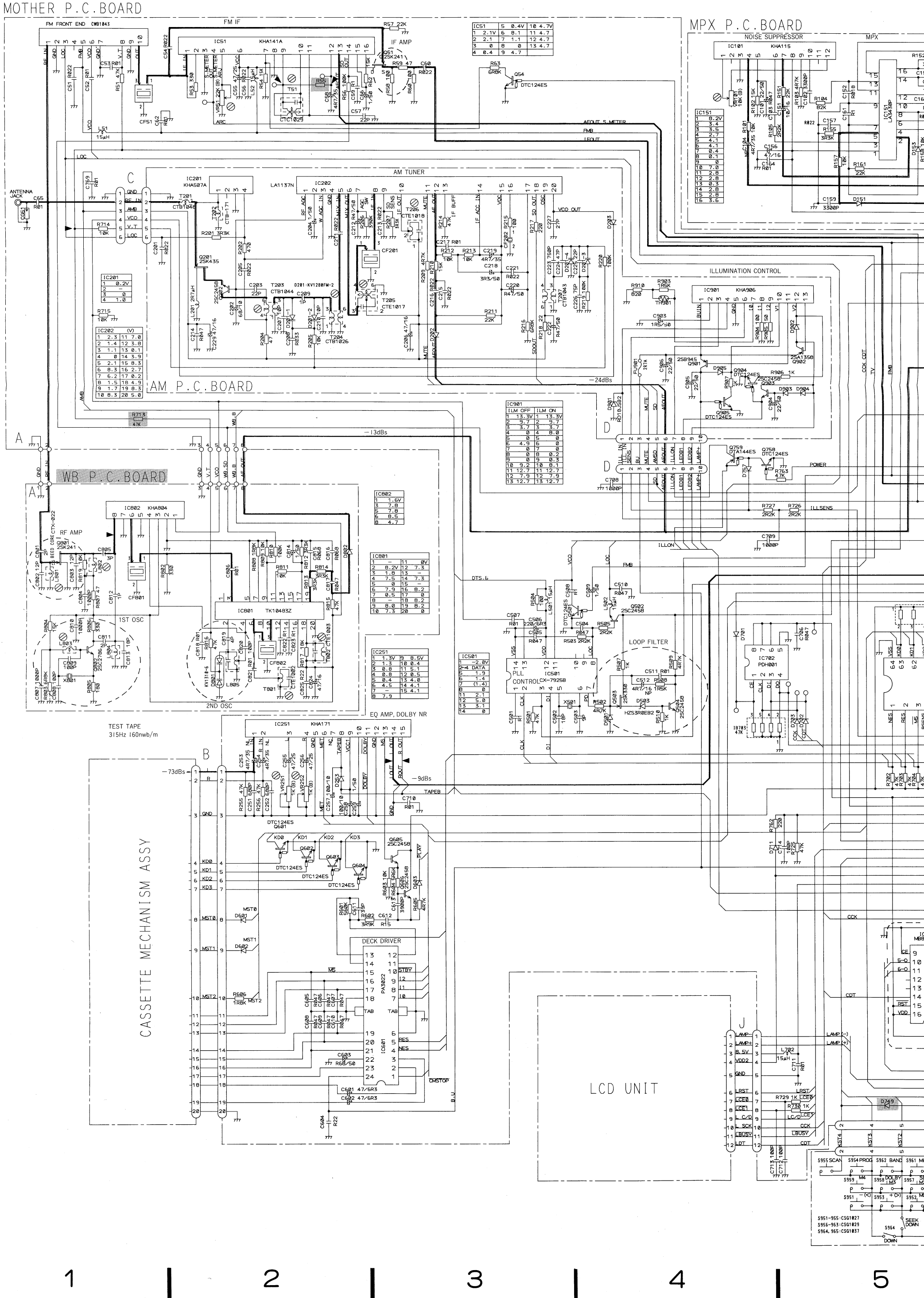


MPX P.C.BORD: IC151

1	2	3	4
8.2V	3.4V	3.5V	2.7V
5	6	7	8
4.1V	4.1V	0.4V	0.1V
9	10	11	12
0V	7.0V	2.8V	2.8V
13	14	15	16
0.3V	2.8V	2.8V	3.6V

Fig. 14

11. SCHEMATIC CIRCUIT DIAGRAM



PIN#		PIN#	
1	SP FRONT L(+)	10	(GAL)
2	SP FRONT R(+)	11	SP FRONT R(−)
3	SP REAR L(+)	12	SP REAR L(−)
4	TEL MUTE	13	ILL IN
5	ACC	14	SP REAR R(−)
6	SP REAR R(+)	15	GND
7	DAC	16	AUTO ANT
8	SP FRONT L(−)	17	LAC
9	BACK UP		

PIN#	
1	DATA
2	RXEN
3	D.GND
4	CD R GND
5	CD L GND
6	CLK
7	RST
8	GND SHIELD
9	CD R
10	CD L

IC551, 552			
1, 5	1.5V	7, 12	7.1V
2, 4	1.5	8, 11	13.4
3, 9	0	10	14.2
6	6.9		

IC751					
1	0V	9	14.3V	16	4.0V
2	5.1	10	8.3	17	5.1
3, 4	DATA	11	(7.4)	18	5.1
5	0	12	(8.2)	19	5.7
6	8.9	13	(8.2)	20	5.1
7	13.3	14	(8.2)		
8	14.3	15	5.1		

IC703	
1	5.0V
2	5.0
3	0
4	0
5	5.0
6	4.6
7	4.7
8	0
9	0

IC752	
1	0V
2	14.2
3	−
4	13.4
5	8.6
6	5.1
7	2.0

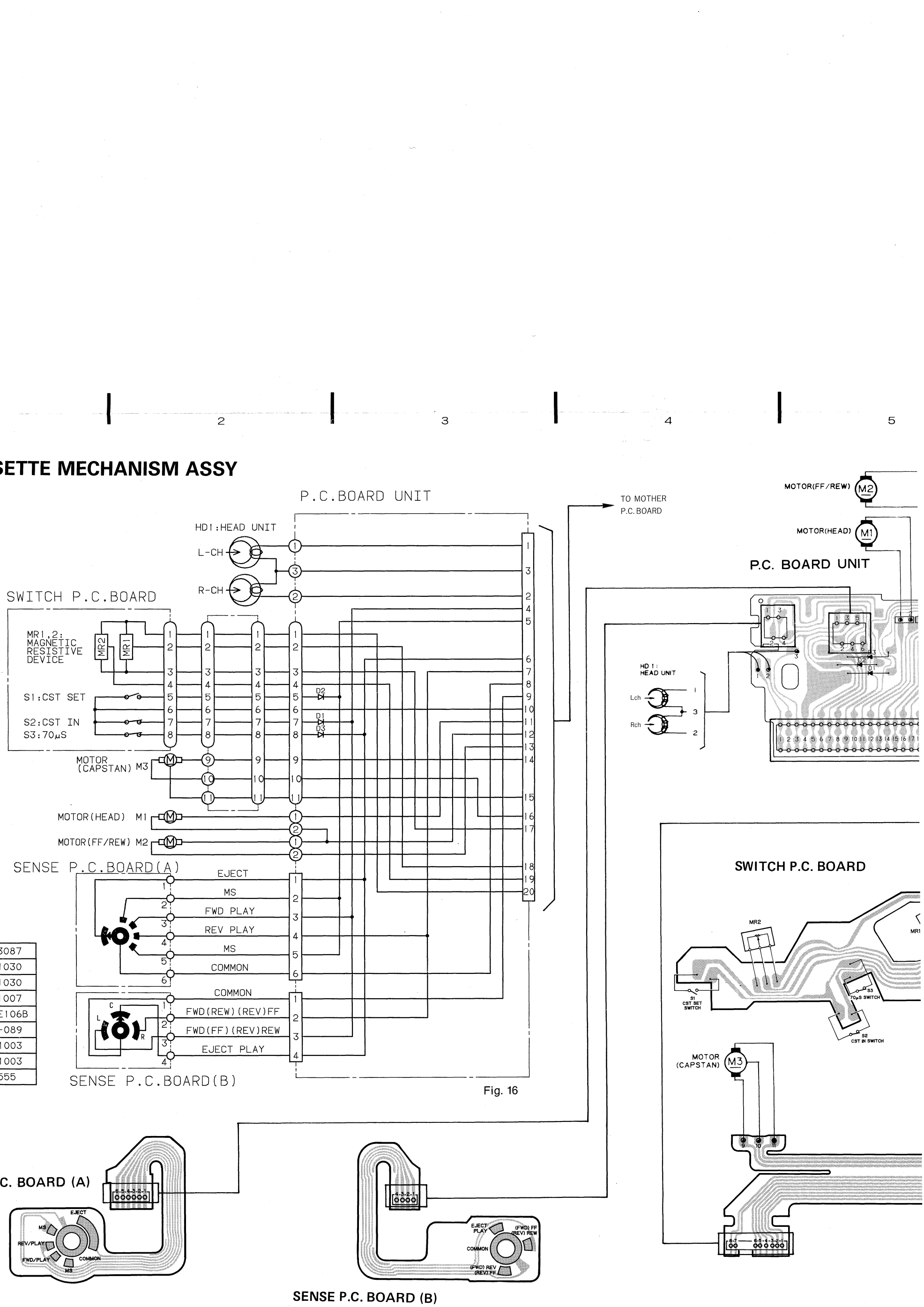
IC451	
1	0V
2	8.6
3	−
4~10	4.3
11	0
12	8.6
13	8.6

	US	ES
R55	3R9K	6R8K
R713	47K	DELETED
R955	270	DELETED
D749	DELETED	1SS133
D963 D964	LN81RC5V	DELETED
WB P.C.BOARD	ADDED	DELETED

TUNER AMP UNIT
Consists of
MOTHER P.C.BOARD
WB P.C.BOARD
AM P.C.BOARD
MPX P.C.BOARD
IF OUT P.C.BOARD

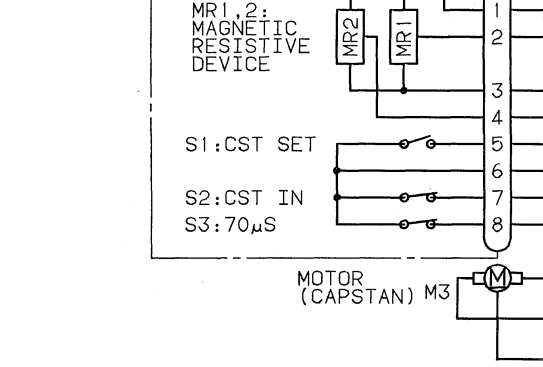
Fig. 15

12. CASSETTE MECHANISM ASSY



HD1	CXA3087
M1	CXM1030
M2	CXM1030
M3	CXM1007
MR1,2	SDME106B
S1	CSN-089
S2	CSN1003
S3	CSN1003
D1-3	1S1555

Fig. 16



SENSE P.C. BOARD (A)

SENSE P.C. BOARD (B)

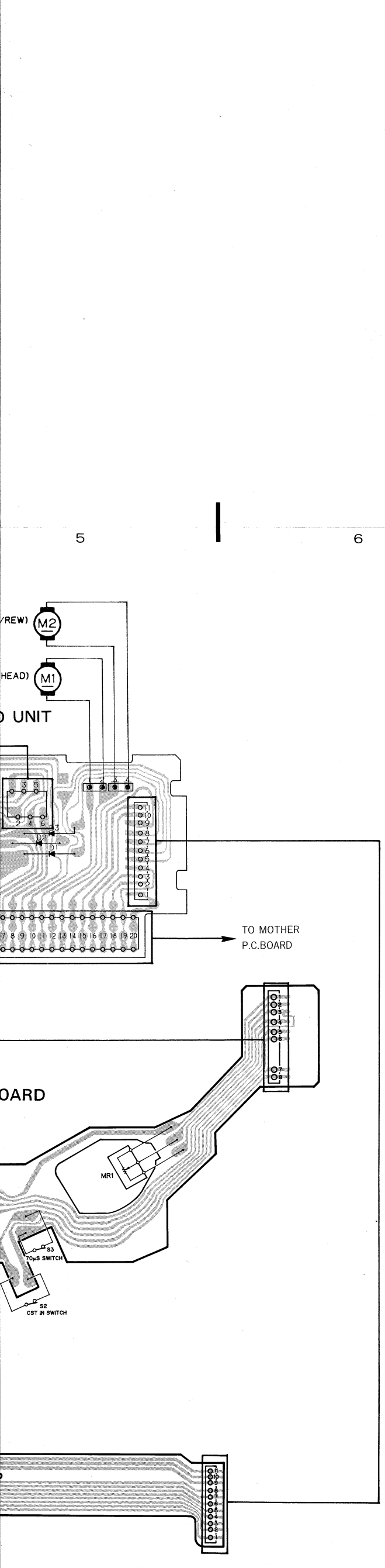


Fig. 17

13. EXPLODED VIEW

NOTE:

- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Mark	No.	Description	Part No.
	1	Case Unit	
	2	Screw	BMZ26P050FMC
◉	3	Cassette Mechanism Assy	CXK1653
	4	Lens	CNV2244
	5	Earth Plate	
	6	Cushion	
	7	P.C.Board	CNP2194
	8	Lens	CNS1996
	9	Sprig	CBH1362
	10	LED	AA4553K-R
	11	Button(1)	CAC2131
	12	Button(2)	CAC2132
	13	Button(3)	CAC2133
	14	Button(4)	CAC2134
	15	Button(5)	CAC2135
	16	Button(6)	CAC2136
	17	Button(BAND)	CAC2129
	18	Button(PROG/SCAN)	CAC2137
	19	Button(<>)	CAC2138
	20	Button(WB)	CAC2130
	21	Door	CAT1236
	22	Button(+)	CAC2139
	23	Button(MODE)	CAC2141
	24	Button(-)	CAC2140
	25	Grille Unit	CXA3560
	26	Knob	CAA1198
	27	Insulator	
◉	28	Tuner Amp Unit	CWM2114
◉	29	Power Supply Unit	CWM2116
	30	Coil	CTH1039
	31	Connector	
	32	Plug	
	33	Volume	CCS1153
	34	Screw	CBA1015
	35	Buzzer	CPV1004
	36	Screw	BMZ30P060FMC
	37	Transistor	2SA1358
	38	IC	AN78M12R
	39	Nut	CBN-003
	40	Frame Unit	
	41	Clamper	
	42	Screw	CBA1100
◉	43	Key Board Unit	CWM2115
	44	Bush	CNV-724
	45	Lamp	CEL1140

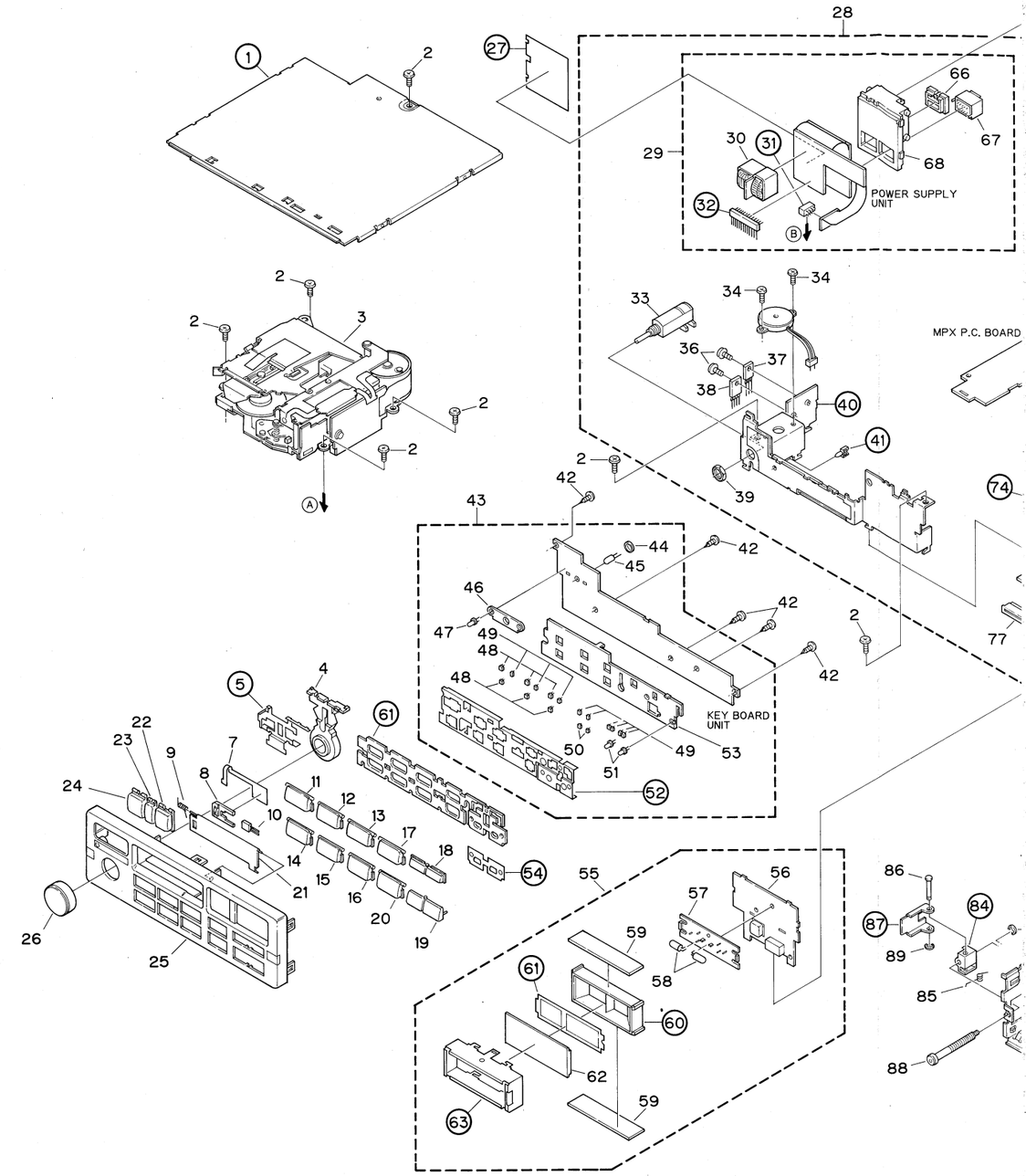
Mark	No.	Description	Part No.
	46	Holder	CNV2264
	47	LED	BR3668S
	48	LED	LN12GC56
	49	LED	LN81RC5V
	50	LED	LN81RC5V
	51	LED	AA3665S-R
	52	Earth Plate	
	53	Housing	CNV2241
	54	Cover	
◉	55	LCD Unit	CWM2117
	56	HIC	KHDE01
	57	Holder	CNV2242
	58	Lamp	CEL1139
	59	Connector	CNV2245
	60	Holder	CNV2265
	61	Sheet	
	62	LCD	CAW1066
	63	Case	
	64	Fuse	CEK1135
	65	Holder	
	66	Cover	CNV2450
	67	Connector	CKM1068
	68	Connector	CKM1067
	69	Connector	CKX1012
	70	Connector	
	71	Frame Unit	
	72	Plug	
	73	Plug	
	74	Plug	
	75	Connector	
	76	Earth Plate	
	77	Connector	CKS1194
	78	Plug	
	79	Plug	
	80	Plug	
	81	Insulator	
	82	Screw	BMZ26P030FZK
	83	E Type Washer	YE20FUC
	84	Slider	
	85	Sprig	CBH1303
	86	Shaft	CLA1071
	87	Clamper	
	88	Bolt	CLA1687
	89	E Type Washer	YE15FUC
	90	Chassis	

Mark No.	Description	Part No.
91	Bolt	CBA1115
92	Heat Sink	
93	Plug	
94	Plug	
95	Connector	
96	Heat Sink	
97	Transistor	2SB945
98	Case	
99	Insulator	
100	FM Front End	CWB1043
101	Cushion	

NSP:Non Spare Part

Mark No.	Description	KE-91ZBM/US Part No.	KE-91ZBM/ES Part No.
20	Button(WB)	CAC2130	·····
25	Grille Unit	CXA3560	CXA3569
◉ 28	Tuner Amp Unit	CWM2114	CWM2299
◉ 43	Key Board Unit	CWM2115	CWM2309
51	LED	AA3665S-R	·····
98	Case	NSP	·····
99	Insulator	NSP	·····

• Exploded View



• **Exploded View**

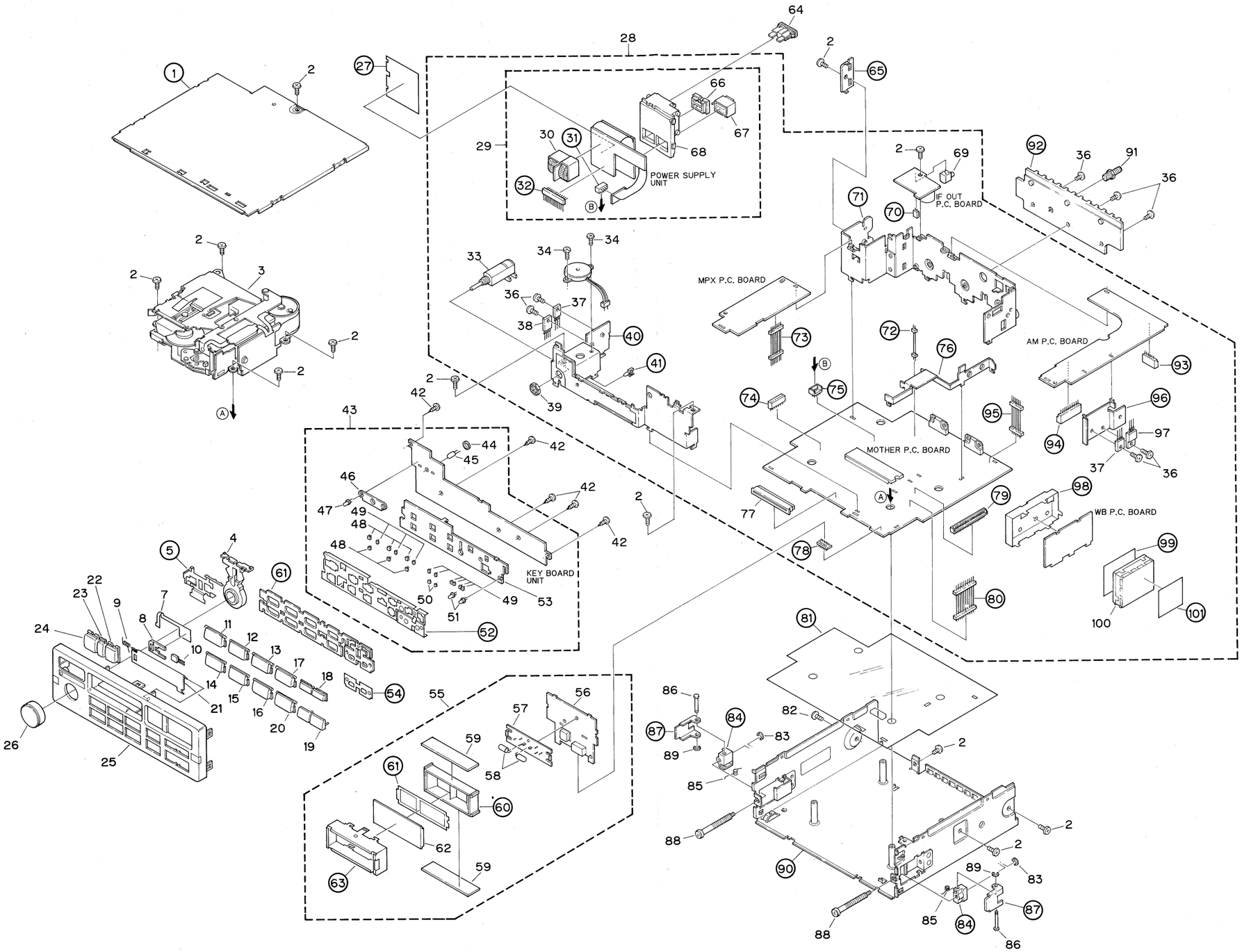


Fig. 18

14. CASSETTE MECHANISM ASSY EXPLODED VIEW

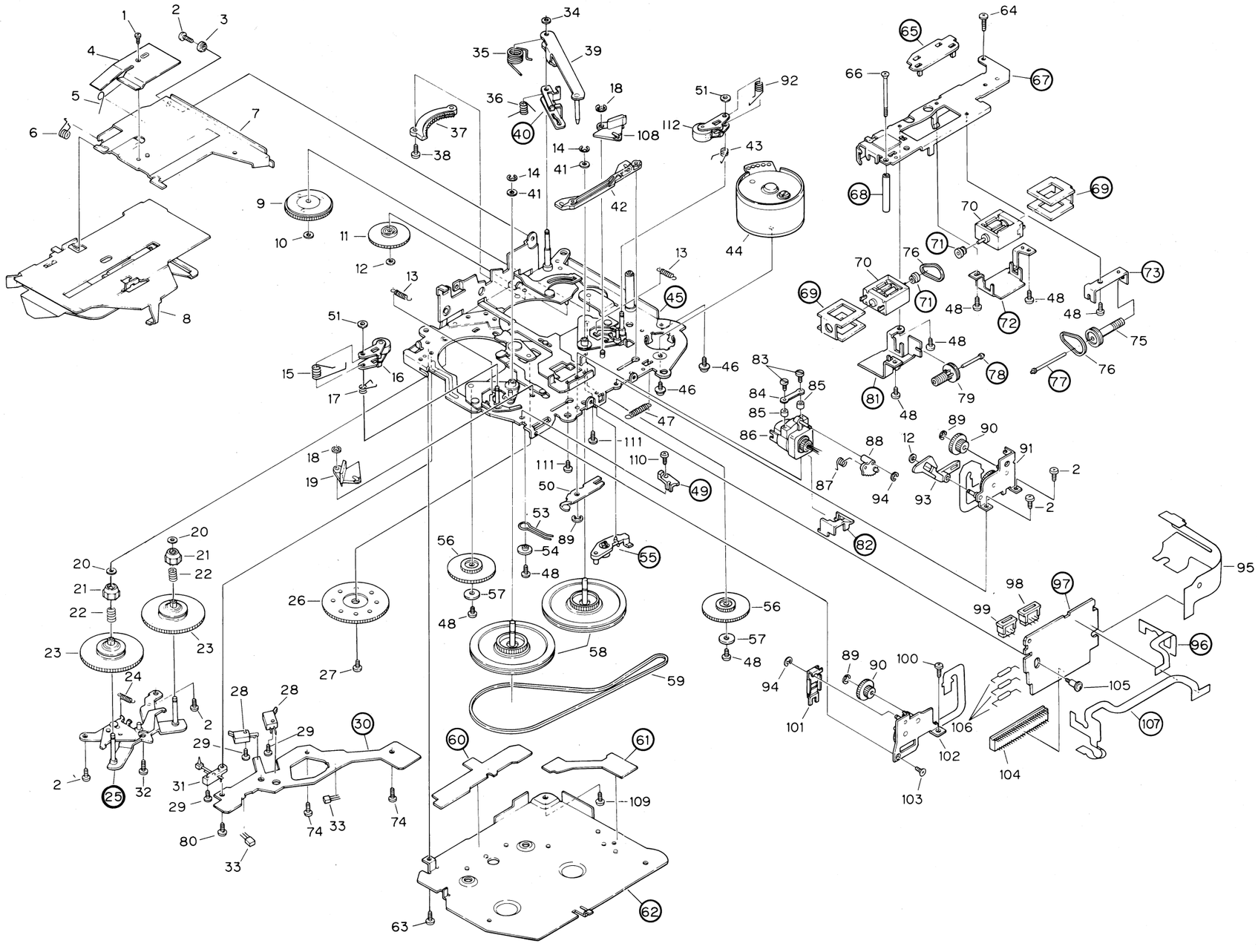


Fig. 19

• Parts List

Mark No.	Description
1	Screw (M1.4)
2	Screw
3	Bush
4	Spring
5	Spring
6	Spring
7	Arm
8	Holder Unit
9	Gear Unit
10	Washer
11	Gear
12	Washer
13	Spring
14	E Type Was
15	Spring
16	Pinch Roll
17	Spring
18	E Type Was
19	Arm
20	Washer
21	Collar
22	Spring
23	Reel Unit
24	Spring
25	Bracket Un
26	F/R Gear
27	Screw
28	Switch (70)
29	Screw (M1.7
30	P.C. Board
31	Switch (CST
32	Screw (M1.7
33	Magnetic R Device
34	Washer
35	Spring
36	Spring
37	Gear
38	Screw (M2×
39	Arm Unit
40	Arm
41	Washer
42	Lever
43	Spring
44	Motor (Caps
45	Chassis Un

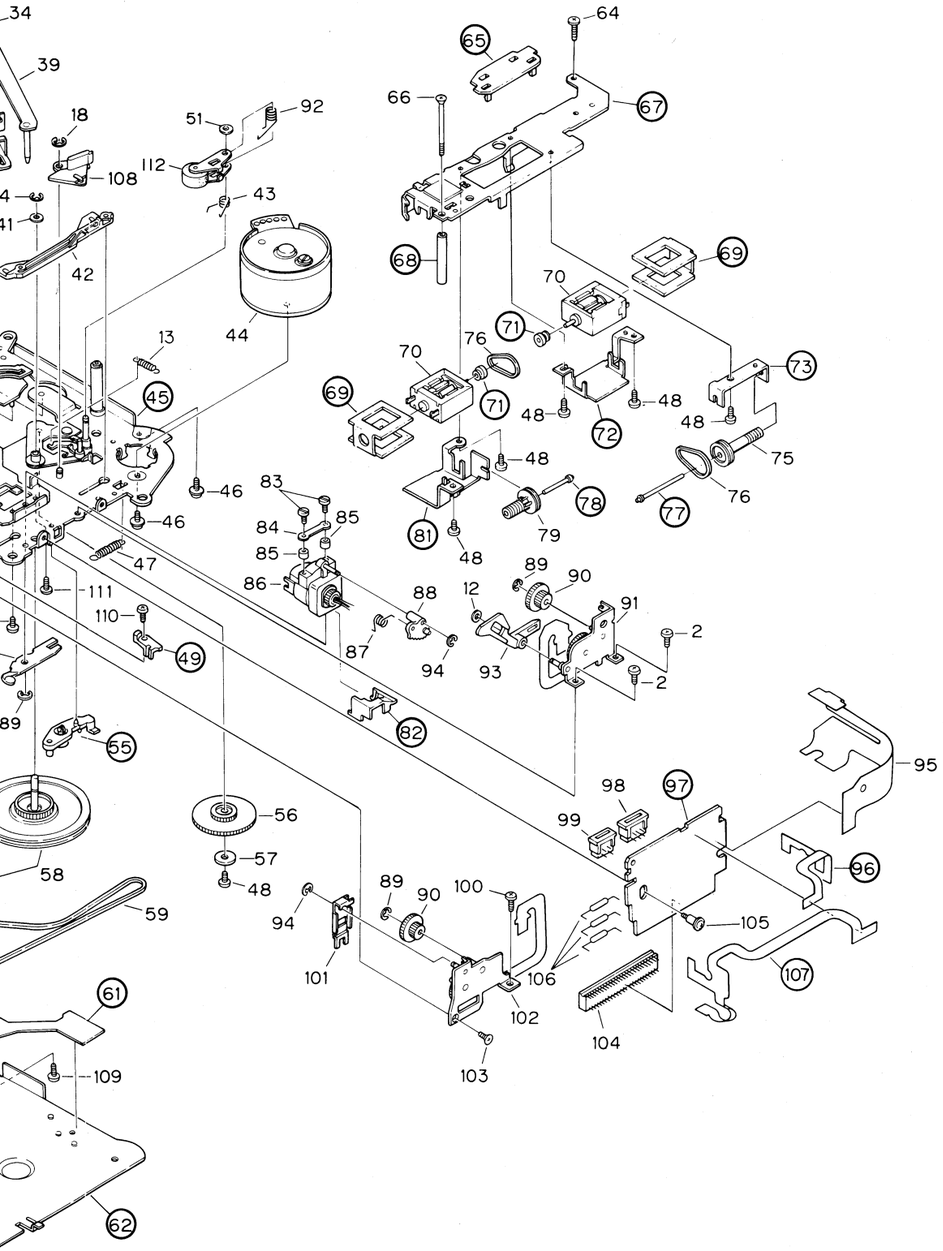


Fig. 19

• Parts List

Mark No.	Description	Part No.
1	Screw (M1.4×1.4)	HBA-147
2	Screw	BMZ20P040FMC
3	Bush	CLB-663
4	Spring	CBL1043
5	Spring	CBH-867
6	Spring	CBH-837
7	Arm	CNC1597
8	Holder Unit	CXA2820
9	Gear Unit	CXA2088
10	Washer	CBF1024
11	Gear	CNY-271
12	Washer	CBF-126
13	Spring	CBH-835
14	E Type Washer	CBG1003
15	Spring	CBH1277
16	Pinch Roller Unit	CXA2609
17	Spring	CBH1197
18	E Type Washer	YE25FUC
19	Arm	CNV1254
20	Washer	CBF1022
21	Collar	CNW-932
22	Spring	CBH-827
23	Reel Unit	CXD2089
24	Spring	CBH-868
25	Bracket Unit	
26	F/R Gear	CNW-944
27	Screw	CBA1106
28	Switch (70μS, CST IN)	CSN1003
29	Screw (M1.7×5.5)	CBA1025
30	P.C. Board	
31	Switch (CST SET)	CSN-089
32	Screw (M1.7×3)	CBA-186
33	Magnetic Resistive Device	SDME106B
34	Washer	CBF-046
35	Spring	CBH-887
36	Spring	CBH-886
37	Gear	CNV1075
38	Screw (M2×5)	CBA1054
39	Arm Unit	CXD-389
40	Arm	
41	Washer	HBF-179
42	Lever	CNV1257
43	Spring	CBH1196
44	Motor (Capstan)	CXM1007
45	Chassis Unit	
46	Screw	PMS26P025FMC
47	Spring	CBH-830
48	Screw (M2×2.5)	HBA-175
49	Spacer	
50	Spring	CBL1050
51	Washer	CBF1025
52	·····	
53	Spring	CBH-893
54	Collar	CLA1110
55	Clamper	
56	Gear	CNV1616
57	Collar	CLA1238
58	Flywheel	CNV1572
59	Belt	CNT-111
60	Insulator	
61	Insulator	
62	Cover	
63	Screw	BMZ20P030FMC
64	Screw (M1.7×5.5)	CBA-172
65	Holder	
66	Screw (M2×25)	CBA-165
67	Guide	
68	Spacer	
69	Insulator	
70	Motor (FF/REW, Head Position)	CXM1030
71	Pulley	
72	Bracket	
73	Bracket	
74	Screw (M2×2.5)	CBA1037
75	Pulley	CNV1255
76	Belt	CNT1010
77	Shaft	
78	Shaft	
79	Pulley	CNV1256
80	Screw (M2×5)	CBA1054
81	Bracket	
82	Cover	
83	Screw (M1.4×8)	CBA1055
84	Spring	CBE-114
85	Azimuth Rubber	CNY-134
86	Head Unit	CXA3087
87	Spring	CBH-829
88	Gear	CNW-939
89	E Type Washer	YE12FUC
90	Gear	CNV1262

Mark	No.	Description	Part No.
	91	Holder Assy	CXA1546
	92	Spring	CBH1276
	93	Arm	CNV1495
	94	E Type Washer	YE15FUC
	95	P.C.Board	CNP1227
	96	P.C.Board	
	97	P.C.Board	
	98	Connector(6P)	CKS1075
	99	Connector(4P)	CKS1073
	100	Screw	BMZ20P060FMC
	101	Arm	CNH-004
	102	Holder Assy	CXA1548
	103	Screw(M2×2)	HBA-209
	104	Connector(20P)	CKS-678
	105	Screw(M2×2×3)	CBA1022
	106	Diode	1S1555
	107	P.C.Board	
	108	Arm	CNV1253
	109	Screw(M2×7)	CBA1060
	110	Screw(M2×4)	CBA1015
	111	Screw(M2×2.5)	CBA1041
	112	Pinch Roller Unit	CXA2608

15. PACKING METHOD

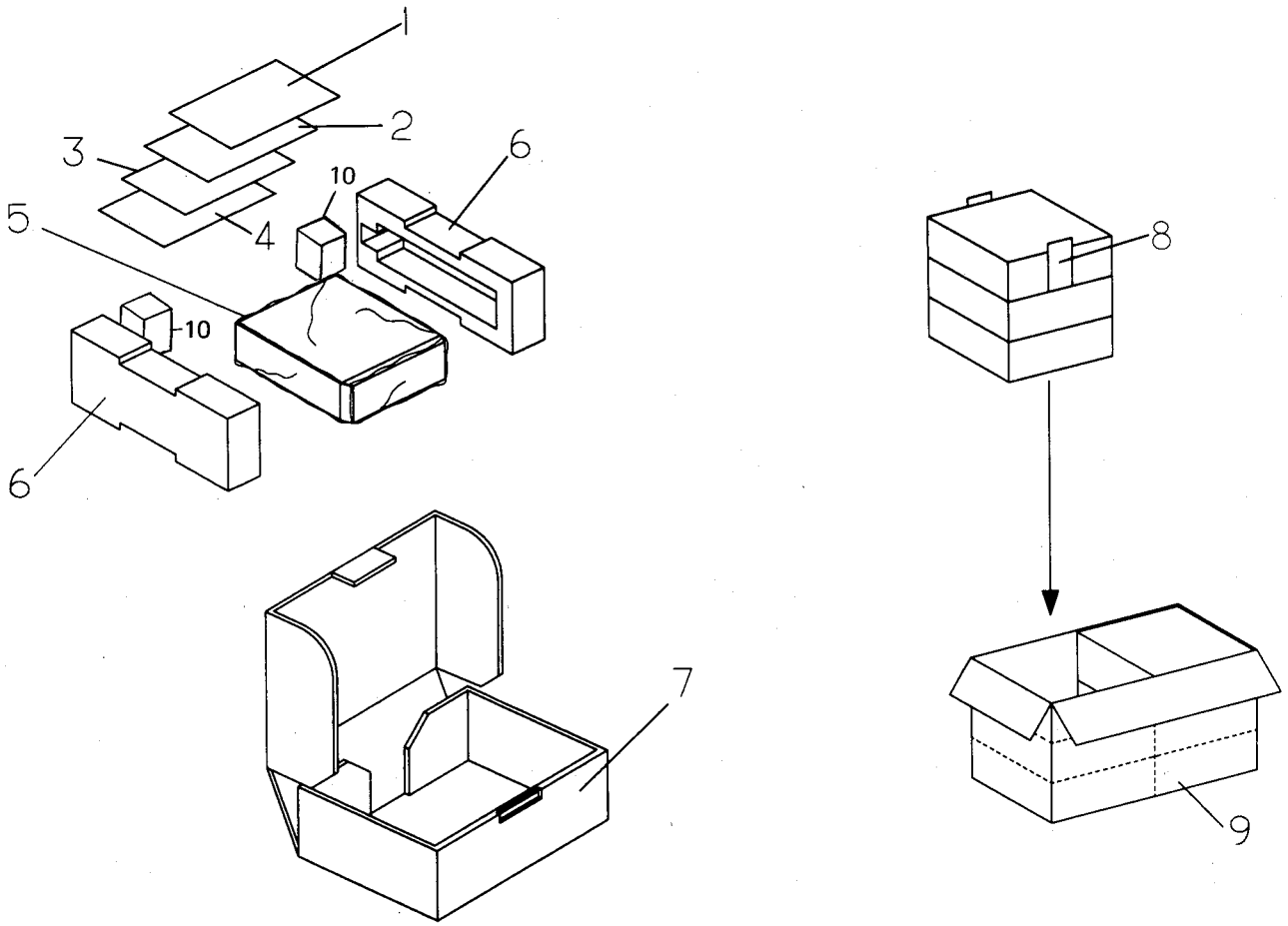


Fig. 20

• KE-91ZBM/US

Mark No.	Description	Part No.
1	Owner's Manual (English)	CRB1147
2	Installation Manual (English)	CRB1148
3	WB Manual (English)	CRB1105
4-1	Envelope	CRY1005
4-2	Owner's Manual (English)	CRB1031
4-3	Card (×2)	CRY1003
4-4	Label	CRW1014
4-5	Tag	CRW1009
4-6	Film (×2)	CRW1009
5	Polyethylene Bag	CEG-162
6	Styrofoam	CHP1272
7	Carton	CHG1756
8	Paper Sheet	CHW1009
9	Contain Box	CHL1756
10	Styrofoam	CHP1340

NSP:Non Spare Part

Mark No.	Description	KE-91ZBM/US Part No.	KE-91ZBM/ES Part No.
1	Owner's Manual	CRB1147	CRB1160
2	Installation Manual	CRB1148	·····
3	WB Manual	CRB1105	·····
4-2	Owner's Manual	CRB1031	CRB1161
7	Carton	CHG1756	CHG1810
9	Contain Box	CHL1756	NSP

16. ELECTRICAL PARTS LIST

NOTE:

- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *The part numbers shown below indicate chip components.*
  Chip Resistor
  RS1/8S□□□J, RS1/10S□□□J
  Chip Capacitor (except for CQS.....)
  CKS....., CCS....., CSZS.....

Tuner Amp Unit
Consists of
• Mother P. C. Board
• AM P. C. Board
• MPX P. C. Board
• WB P. C. Board
• IF Out P. C. Board

Unit Number :
Unit Name : Tuner Amp Unit(US)

MISCELLANEOUS

Mark	Circuit Symbol & No.	Part Name	Part No.
IC	51		KHA141A
IC	52		AN78M12R
IC	101		KHA115
IC	151		LA3430P
IC	201		KHA507A
IC	202		LA1137N
IC	251		KHA171
IC	451		KHA260
IC	452		CWV1009
IC	501		CX-7925B
IC	551 552		TA7280P
IC	601		PA3022
IC	701		PD4216A
IC	702		PDH001
IC	703		KHA907
IC	751		PA1004A
IC	752		KHA241
IC	801		TK10483Z
IC	802		KHA804
IC	901		KHA906
IC	951 952		MB88307P
IC	953		MB88306P
Q	51		2SK241
Q	52 54 706 709 904 905		DTC124ES
Q	53 501 601 602 603 604 701 705 758		DTC124ES
Q	201		2SK435
Q	202 451 452 502 504 605 606 703 704 753		2SC2458
Q	503		2SK330
Q	702 708 759		DTA144ES
Q	707 752		2SB808
Q	751 902		2SA1358
Q	756		2SB1238
Q	757 955 956 957 958		DTC123JS
Q	801		2SK241
Q	802		2SC2786
Q	901		2SB945
Q	903 952 954		2SC2458
Q	951 953		2SD1861
D	151 152 153 202 203 251 252 253 451 452		1SS133
D	201		KV1280F1-2
D	501 601 602 603 701 702 703 704		1SS133
D	503		HZS3R0EB2
D	705 707 708 709 710 711 712 713 714		1SS133
D	706		MA700
D	715 754 802 803 804 902 903 904 905 973		1SS133
D	755		2Z30
D	756		RD8R2JSB2
D	757 974		1SS133
D	801		KV1310-6
D	901		RD18JSB2
L	51 52 151 501 502 702 753	Ferri-Inductor	LAU150K
L	53 752	Inductor	CTF1053
L	201	Inductor	CTF1056
L	701	Inductor	CTF1051
L	703	Ferri-Inductor	LAU101K
L	801 802 804	Coil	CTC1006
L	803	Coil	CTC1030
L	805	Coil	CTE1001
T	51	Coil	CTC1029
T	201	Coil	CTB1048
T	202	Coil	CTB-171
T	203	Coil	CTB1044
T	204	Coil	CTB1026
T	205	Coil	CTE1017
T	206	Coil	CTE1018
T	207	Coil	CTB1043
T	801	Coil	CTE1002
T	802	Coil	CTE1003
CG	51		DSP-201M
CG	701 702	Surge Absorber	ERZ-C05DK680
TH	901	Thermister	ERP-F3A2M681A
CF	51	Ceramic Filter	CTF-182
CF	201	Filter	CTF-100
CF	202	Ceramic Resonator	CTF1039
CF	801	FM Ceramic Filter	CTF-101
CF	802	Filter	CTF1004
IB	701 702 703		CWW1048
IB	704		CWW1189
IB	705		CWW1222
X	151	Ceramic Resonator	CSS1028

Mark	Circuit Symbol & No.	Part Name	Part No.
X	501	Crystal Resonator	CSS1011
X	701	Crystal Resonator	CSS1029
X	702	Buzzer	CPV1004
X	801	Crystal Resonator	CSS1001
VR	51	Semi-fixed 22kΩ (B)	VRTB6VS223
VR	101	Semi-fixed 10kΩ (B)	VRTB6VS103
VR	251 252	Semi-fixed 1kΩ (B)	VRTB6VS102
VR	451/S 451	Volume/Switch 20kΩ (B)	CCS1153
FU	751	Fuse 7.5A	CEK1135
FU	901	IC Protector 2.7A	ICP-F75
		FM Front End	CWB1043
		Bead Core	CTX-022

RESISTORS

Mark	Circuit Symbol & No.	Part Name	Part No.
R	51 255 256 501 702 703 704 705 713 725		RS1/10S473J
R	53 709 802 806		RD1/4PS331JL
R	54 62 102 160 210 804		RD1/4PS153JL
R	55		RD1/4PS392JL
R	56 219 220 466 718 810		RD1/4PS104JL
R	57 161 211 760 968 971		RD1/4PS223JL
R	58 60 215 504 753 904		RD1/4PS101JL
R	59 204 807		RD1/4PS470JL
R	61 452 603 714 758 811		RD1/4PS103JL
R	63 216		RS1/10S682J
R	101 154 157 158 159 205 212 213 451		RD1/4PS103JL
R	103 153 209 502 509 605 710 728		RD1/4PS472JL
R	104		RD1/4PS823JL
R	105 726 727		RS1/10S222J
R	151		RS1/10S223J
R	152		RS1/10S334J
R	155 156 201 207 459 460 812 813 814		RD1/4PS332JL
R	202 708		RD1/4PS471JL
R	206		RD1/4PS394JL
R	214 253 254 453 454 455 456 711 716 717		RD1/4PS473JL
R	217 551 552 555 556 762		RD1/4PS221JL
R	218 757		RD1/4PS220JL
R	251 252		RD1/4PS393JL
R	457 458 461 462 463 464 503 505		RD1/4PS222JL
R	465 754 905		RD1/4PS151JL
R	507 510 719 720 721 722 723 724		RD1/4PS102JL
R	508 903		RD1/4PS152JL
R	553 557		RD1/4PS010JL
R	601		RS1/10S564J
R	602		RS1/10S392J
R	604		RD1/4PS562JL
R	606 808		RS1/10S182J
R	701		RD1/4PS105JL
R	706 707 715 809 819		RS1/10S103J
R	712 729 730		RS1/10S102J
R	731 733 759 761 906 907		RD1/4PS102JL
R	732 961 962 963 964 965 966		RD1/4PS561JL
R	734 735		RS1/10S221J
R	736 737		RS1/10S472J
R	738 752 763 815 816 959		RD1/4PS473JL
R	755 756 967 970		RD1/4PS222JL
R	803		RD1/4PS682JL
R	805		RD1/4PS181JL
R	817		RD1/4PS183JL
R	910		RS1/10S821J
R	960 974		RS1/10S473J
R	969		RD1/4PS1R5JL
R	972		RD1/4PS4R7JL

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
C	51 54 56 157 158 201 211 213 221 205		CKSQYB223K50
C	52 62 155 164 217 507 511 806 818 821		CKSQYB103K50
C	53		CKPYY103M16L
C	55 61 255 256 562 574		CEA470M25L2
C	57		CCSQUJ220J50
C	58 219		CEA4R7M35LS
C	59 161 501 508 762 822 823		CKSQYF104Z25
C	60 707 771		CKSQYB223K50
C	63 65 67 710 711 769		CKSQYB103K50
C	66 154 259 463 464 465 466		CEA010M50LS2
C	101 904 905 906		CEA220M50L2
C	102 159 160		CKSQYB332K50
C	103		CKSQYF473Z50
C	104		CEA4R7M35NPLL
C	151 453 454 459 460 469 705 757 766		CEA100M16LS2
C	152		CKSQYB183J50
C	153		CSZAR22K35
C	156 206 229 824		CEA470M16LS
C	162 163		CEA3R3M50LS
C	202		CEA680M10LS
C	203 225		CCSQCH220J50
C	204 451 452 509 551 552 563 564 756 814		CEA010M50LS2
C	207 210		CCSQCH100D50
C	208		CKSQYF333Z25
C	209 812		CCSQCH010C50
C	212 220 222		CEAR47M50LS2
C	214 504 505 510 605 606 607 608 609 610		CKSQYF473Z25
C	215 216		CQMA223J50
C	218		CEA3R3M50LS
C	223		CQPA751G2A
C	224		CCSQCH470J50
C	226		CCSQCH750J50
C	227		CCSQCH270J50
C	251 252		CCSQSL681J50
C	253 254		CEANL4R7M35LL
C	257 553 554 555 556 565 566 567 568		CEA101M10L2
C	258		CEA101M10L2
C	455 456		CEAR22M50LS2
C	467 759		CEA471M10L2
C	468		CEA101M10LS
C	502 813		CCSQCH180J50
C	503		CCSQCH090D50
C	506 764 767		CEA221M6R3LL
C	512	4.7μF/16V	CCH1005
C	557 558 569 570	1000μF/16V	CCH1057
C	559 560 571 572		CQMA224J50
C	561 573		CQMA154J50
C	575		CEA100M50L2
C	601 602		CEA470M6R3LS
C	603		CEAR68M50LS2
C	604 703 761 825		CKSYF224Z25
C	611		CCSQCH390J50
C	612		CKSYF154Z25
C	613		CKSQYB392K50
C	701 702		CCSQCH330J50
C	704 706 758 765 768		CKSQYF473Z25

Mark	Circuit Symbol & No.	Part Name	Part No.
C	708 709 715 770 804 807 810 951		CKSQYB102K50
C	712 713 714 820		CCSQCH101J50
C	760		CEA222M16L2
C	763 772		CASA4R7M16
C	801 811		CCSQCH020C50
C	802 803		CCSQCH120J50
C	805		CCSQCH030C50
C	808 809		CCSQUJ101J50
C	815 816		CQEA683J50
C	817		CKSQYB473K25
C	819		CCSQCH040C50
C	901	4.7μF/5.5V	CCL1016
C	903		CEA1R5M50LS2

Unit Number :
Unit Name : Key Board Unit(US)

MISCELLANEOUS

Mark	Circuit Symbol & No.	Part Name	Part No.
D	951 952 953 954 955 956	LED	LN12GC56
D	957 958 959 961 962 963 964 967 968 969	LED	LN81RC5V
D	960	Chip Diode	RD2R2MB
D	965 966	LED	AA3665S
D	970	LED	LN81RC5V
D	971	LED	BR3668S
S	951 952 953 954 955	Switch	CSG1027
S	956 957 958 959 960 961 962 963	Switch	CSG1029
S	964 965	Switch	CSG1037
IL	951	Lamp 8V 60mA	CEL1140

RESISTORS

Mark	Circuit Symbol & No.	Part Name	Part No.
R	951		RS1/8S221J
R	952 953 973		RS1/8S681J
R	954 955 958		RS1/8S271J
R	956 957		RS1/8S471J

Unit Number :
Unit Name : Power Supply Unit

MISCELLANEOUS

Mark	Circuit Symbol & No.	Part Name	Part No.
D	751		SIB01-01
D	752		ERA15-02
L	751	Coil	CTH1039

RESISTORS

Mark	Circuit Symbol & No.	Part Name	Part No.
R	901		RD1/4PS103JL
R	902		RD1/4PS472JL

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
C	751 754		CKDYF223Z50
C	752	2200μF/16V	CCH1001
C	755	1000μF/16V	CCH1057
C	902		CEA4R7M35L2

Unit Number :
Unit Name : LCD Unit

MISCELLANEOUS

Mark	Circuit Symbol & No.	Part Name	Part No.
IC	902		KHDE01
IL	901 902	Lamp 8V 100mA	CEL1139
		LCD	CAW1066

Unit Number :
Unit Name : Switch P.C.Board

Mark	Circuit Symbol & No.	Part Name	Part No.
S	1	Switch(CST SET)	CSN-089
S	2 3	Switch(CST IN, 70μs)	CSN1003
MR	1 2	Magnetic Resistive Device	SDME106B

Unit Number :
Unit Name : P.C.Board Unit

Mark	Circuit Symbol & No.	Part Name	Part No.
D	1 2 3		1S1555

Miscellaneous Parts List

Mark	Circuit Symbol & No.	Part Name	Part No.
HD	1	Head Unit	CXA3087
M	1 2	Motor(Head, FF/REW)	CXM1030
M	3	Motor(Capstan)	CXM1007
D	972	LED	AA4553K-R

• Key Board Unit

	KE-91ZBM/US	KE-91ZBM/ES
D 963 964	LN81RC5V	·····
R 955	RS1/8S271J	·····

• Tuner Amp Unit

	KE-91ZBM/US	KE-91ZBM/ES
Circuit Symbol & No.	Part No.	Part No.
IC801	TK10483Z	·····
IC802	KHA804	·····
Q 801	2SK241	·····
Q 802	2SC2786	·····
D 749	·····	1SS133
D 801	KV1310-6	·····
D 802	1SS133	·····
L 801 802 804	CTC1006	·····
L 803	CTC1030	·····
L 805	CTE1001	·····
T 801	CTE1002	·····
T 802	CTE1003	·····
CF801	CTF-101	·····
CF802	CTF1004	·····
X 801	CSS1001	·····
Bead Core	CTX-022	·····
C 801 811	CCSQCH020C50	·····
C 802 803	CCSQCH120J50	·····
C 804 807 810	CKSQYB102K50	·····
C 805	CCSQCH030C50	·····
C 806 818 821	CKSQYB103K50	·····
C 808 809	CCSQUJ101J50	·····
C 812	CCSQCH010C50	·····
C 813	CCSQCH180J50	·····
C 814	CEA010M50LS2	·····
C 815 816	CQEA683J50	·····
C 817	CKSQYB473K25	·····
C 819	CCSQCH040C50	·····
C 820	CCSQCH101J50	·····
C 822 823	CKSQYF104Z25	·····
C 824	CEA470M16LS	·····
C 825	CKSQYF224Z25	·····
R 55	RD1/4PS392JL	RD1/4PS682JL
R 713	RS1/10S473J	·····
R 802 806	RD1/4PS331JL	·····
R 803	RD1/4PS682JL	·····
R 804	RD1/4PS153JL	·····
R 805	RD1/4PS181JL	·····
R 807	RD1/4PS470JL	·····
R 808	RS1/10S182J	·····
R 809 819	RS1/10S103J	·····
R 810	RD1/4PS104JL	·····
R 811	RD1/4PS103JL	·····
R 812 813 814	RD1/4PS332JL	·····
R 815 816	RD1/4PS473JL	·····
R 817	RD1/4PS183JL	·····